

ANIMAL KEEPERS' FORUM

DEDICATED TO PROFESSIONAL ANIMAL CARE.

Volume II, Number 1

January 1975

NEW INDIAN RHINO AT L.A.

by Mike Dee, Los Angeles Zoo

The Los Angeles Zoo has just purchased a female Indian rhino from the Gladys Porter Zoo in Brownsville, Texas. Her name is "Rhonda" and she was born in Basel, Switzerland in 1968. She will be on exhibit in the Eurasian Section of the zoo with another female and a male. "Rhonda" will be temporarily housed in the African rhino barn until new quarters can be added on to the Indian rhino exhibit at the zoo. Once completed, the Indian Rhino exhibit should be able to accomodate seven or eight rhinos. We hope to be able to breed these rare and endangered animals once the refurbishing is done.

AAZK HEAD RESIGNS

Richard G. Sweeney, Executive Secretary of the American Association of Zoo Keepers, has announced his resignation effective 31 December 1974. Sweeney is a keeper at the San Diego Zoo and has held the Executive Secretary position for more than seven years.

NEW AAZK EXECUTIVE NAMED

Rick Steenberg, a keeper at Como Zoo in St. Paul, Minnesota and a member of AAZK's Board of Directors, has been designated as the new Executive Secretary. Steenberg's appointment has been confirmed by the Board of Directors.

H.R. 16458.....DEAD

H.R. 16458, the bill to establish accreditation standards and procedures for zoos, died when the 93rd Congress adjourned shortly before Christmas. The bill was introduced by Rep. John Dingell of Michigan, and subsequently was referred to a House subcommittee, where it received no action. Even though H.R. 16458 was not acted upon, new accreditation legislation is expected to be introduced during the upcoming 94th Congress.

IN THE INTEREST OF CONSERVATION

by Rick Steenberg, St. Paul's Como Zoo

Toby, the Galapagos tortoise who's been wandering around giving kids rides at St. Paul's Como Zoo for the past fifteen years, has finally found a new vocation. Or is it avocation? At any rate, he recently boarded a Northwest Orient jet and flew off into the sunset to land at Honolulu, Hawaii. There he'll spend his time lolling amongst palm trees and girl tortoises. Hopefully, Toby will make his own contribution to the salvation of his species.

FROM THE AKF STAFF

Due to the important news and notices in this issue we have decided to send out one more complimentary copy. All AAZK members should receive this issue and should take note of the item concerning an AKF - AAZK agreement. We would like to thank all those who have subscribed and we look forward to a happy and successful year ahead.

ARTICLES PRINTED IN THE AKF MAY NOT NECESSARILY REFLECT THE VIEWS OF THE AKF STAFF.

Articles for publication in AKF should be sent to: AKF Editorial Staff, Topeka Zoological Park, 635 Gage Boulevard, Topeka, Kansas 66606.

THE PRIVILEGE OF BEING A KEEPER *by Gary K. Clarke, Director, Topeka Zoological Park*

There are a few individuals in this world who are able to do what they really want to do in life and still be able to make a living. I would consider Animal Keepers in this category. Working in a zoo is an extremely demanding situation. It is not a job, it is your entire life. You eat, sleep, drink, breathe and live ZOO! You lead a super-charged existence and it totally consumes your energies, but it's the greatest privilege in the world.

As a youngster, I had tremendous admiration and respect for the Keepers at the Zoo, I still do. On my 16th birthday, I applied for a Keeper position at the Kansas City Zoo and was very disappointed to learn that you had to be 18 years old. So, on my 18th birthday, I again applied and was accepted as one of many for summer work. Well, before the end of the summer, most of the rest of the applicants had gone "over the hill", as they used to say at the K.C. Zoo. But I stuck with it, even though I was doing everything except actually caring for animals...picking up litter, sweeping sidewalks, scrubbing out the sea lions' pool, chopping weeds on the African Veldt (and it was hot as Africa) and painting, painting, painting!

Finally, I was selected to fill in for one of the regular Keepers during his two week vacation. Wow! Here was my chance. It was a great initiation and the animals taught me many things in a brief time. From then on, I was privileged to work in all areas of the Zoo with a variety of species. Regardless of how much formal educational background one may have, or how extensive one's reading may have been (and both of these are most important), the only way to really learn how to work with wild animals is to do so. The animals themselves are the greatest teachers in the world.

It is not only a great privilege to be a Keeper, but a tremendous responsibility. Not just because you are responsible for the care of your animals, but because your actions represent your Zoo and your attitude influences others. The Zoo visitor may never see the Director, but they almost invariably see the Keepers--the Keepers at work, and in relationship to their animals.

As a Keeper, I listened to the visitors' comments, I answered questions and I wanted the visitors to appreciate the animals and understand the purpose of the Zoo. As a Zoo Director, I can accomplish these goals to some extent through educational labels, a Zoo Guide Book and periodical magazine, graphics, Docent programs and mass education through the Zoo's radio and television programs. However, you as the Keeper are the most important aspect of accomplishing this goal, because you relate to the visitor on a one to one basis--the most effective means of communication. But, you have to want to do this from within. You have to want to be a good Keeper.

Consider your responsibilities seriously. Accept the challenge eagerly, and relish the privilege of being a Keeper.

ZOOLOGICAL ACTION COMMITTEE, INC. - ZOO ACT

New zoo legislation, anti-zoo activists, humaniacs and the increasing load of regulations detrimental to zoo commerce has prompted the formation of a new organization, Zoo Act. It is designed to provide professional zoo input into the Washington bureaucratic circles. Zoo Act is an off-shoot of the American Association of Zoological Parks and Aquariums. The AAZPA has no legal capability to undertake the task, since it is a non-profit organization. Zoo Act is aggressively pursuing its goals and Animal Keepers' Forum is pleased to support the Committee's intentions. For more information on Zoo Act, including membership information and dues schedule, write: ZOOLOGICAL ACTION COMMITTEE, INC., 1225 Nineteenth St., N.W., Washington, D.C. 20036.

MAURITIUS KESTREL CHICK DIES. BLOW TO WORLD'S RAREST BIRD.
EFFORTS TO SAVE SPECIES TO CONTINUE

Washington, D.C. -- The Mauritius kestrel chick hatched in October was killed by an incubator malfunction as rare as the bird itself.

The chick's hatching was the successful result of a captive breeding program in Mauritius, supported by World Wildlife Fund, the International Council for Bird Preservation (ICBP) and the New York Zoological Society, an effort to save the world's rarest bird from extinction.

Dr. Stanley A. Temple, the American ornithologist conducting the project, reported the mercury vapor switch controlling the temperature of the incubator exploded. Other ornithologists, commenting on the rarity of such an occurrence, have said it is almost "unheard of." The first clutch of eggs is customarily removed to an incubator to encourage the breeding pair to produce a second clutch.

"The lab provides conditions as least as good for hatching and developmental success as the nest," said Mr. Warren B. King, Executive Assistant to the President of ICBP. "The death of the Mauritius kestrel chick as a result of a most unusual avicultural accident is disheartening in that it happened at all. But it is encouraging that it is not a problem likely to be encountered again. That the birds laid fertile eggs so early in the captive breeding program augurs well for the success of this effort to rescue the Mauritius kestrel," commented Dr. Thomas E. Lovejoy, Program Administrator of World Wildlife Fund-U.S.

The attempt to save this species of small falcon (Falco punctatus) through captive breeding began last year when Dr. Temple's census revealed the seven individuals remaining on their Indian Ocean island had produced no young in the wild in 1973.

Dr. Temple, of Cornell University's Laboratory of Ornithology, captured a pair and provided conditions under which they have proved they can successfully breed.

Two remaining wild pairs inhabit the remnant forests of the Island of Mauritius near the Black River Gorge, an area Dr. Temple has proposed be declared a national park. The bird's decline is attributed to destruction of its forest habitat, persecution by man, and predation by introduced monkeys and rats on eggs and young.

NATIONAL ZOO...KEEPER NEWS *by Bela Demeter, National Zoo*

We have a Speaker Program now in operation modeled after the one at the Brookfield Zoo. Instead of a flat fee, we are asking for 25¢ per child or a minimum of \$15.00. Most of our requests come from schools, although we do get a few from clubs and civic organizations. We are not making much profit on the program, as the keeper receives \$15.00 for a presentation and most of our requests are for audiences of less than sixty persons. However, the money raised by our Halloween party enabled us to buy a slide projector and a slide copier for the program. Also, in conjunction with the Smithsonian Associates and the Friends of the National Zoo, we are presenting an eight week course entitled "Behind the Scenes at the National Zoo". Each week a keeper takes a group behind his or her line and discusses the animals and the kind of work he does to keep them healthy. For this course, the keeper (a different one each week) is paid thirty dollars, five of which goes to our chapter. The course is expected to be offered about three to six times a year so all the keepers have a chance to participate.

AAZV CONFERENCE - 1974 by Chris LaRue, Topeka Zoo

The annual meeting of the American Association of Zoo Veterinarians was held Nov. 4 thru Nov. 7 in Atlanta, Ga. The four day session was crammed with over 50 very interesting lectures and seminars on the latest advances in exotic animal medicine.

Over 300 zoo and exotic animal veterinarians from the U.S., Canada and around the world participated in the Atlanta conference. Besides the massive schedule, the delegates were also conducted on detailed tours of the Atlanta Zoo, Yerkes Primate Research Center, and Lion Country Safari near Atlanta.

Although the AAZV Conferences are aimed at zoo veterinarians, the papers are of great interest to all zoo professionals. The case reports give keepers an idea of the symptoms of many illnesses and some insight into the treatment of various diseases.

PROPOSED AAZK -- AKF AGREEMENT

All members of the AAZK Board of Directors have received a copy of a letter suggesting a joint use agreement between AAZK and AKF. It is proposed that AAZK utilize Animal Keepers' Forum in it's present form as the official newsletter of AAZK. The Keeper in its present form would no longer be published. The name would be used on an annual or semiannual journal of technical articles on animal care to be printed by AAZK with AKF funds.

If this agreement is approved by the Board, the service could be initiated immediately. In the agreement, \$5.00 of each \$10.00 AAZK membership would be put into the AKF account to pay for printing, mailing and maintenance of the computer mailing list. The AKF staff would handle all compiling, editing and publishing of the newsletter. AKF would retain its present format and as much space as is needed would be made available for AAZK news and official headquarters announcements and business.

Subscriptions to AKF would be open to non-AAZK members for \$5.00 per year. Because of this, control of the newsletter would be under the jurisdiction of the existing editorial staff and would not be changed without the approval of both the AKF staff and the AAZK Board. The joint use agreement would not be binding and either party could withdraw at any time.

We hope the Board will consider this proposal favorably and act as soon as possible. This improved service should stimulate membership renewals and add strength and new growth to AAZK. The advantage to the AAZK membership would be a larger circulation that would allow for a bigger and better newsletter. The advantage to animal keepers would be a united effort toward professionalism.

LIFE AND DEATH IN THE ZOO from "What's new at the zoo", December 1974, Jeanne Laura Segal, Editor, submitted by Umberto V. Porta

The Philadelphia Zoo's female monkey-eating eagle, Phyllis, was found dead in her enclosure on the morning of Wednesday, December 4.

Phyllis, the oldest monkey-eating eagle in the New World, shared her spacious aviary with "Legs", who arrived from the Bronx Zoo in 1973. They became the only captive pair of monkey-eating eagles in the New World, allowing the Zoo great expectations for successful breeding.

Those hopes were irrevocably dashed by a freak accident. Zoo staff speculates that while Phyllis was attempting to grasp a wild rabbit with her sharp, powerful talons through the outdoor enclosure wire, she broke off the tip of one nail and fractured it down to an artery, which then bled severely, causing her death.

WHITEHURST WRITES PRESIDENT REGARDING WOLF FUR COAT

Second District Congressman William Whitehurst (R-VA) has written President Ford expressing distress that the President is to receive another wolf fur coat to replace the one given to Soviet leader Leonid Brezhnev during a recent meeting in Vladivostok. Whitehurst asked the President to consider using a synthetic fur which is superior to wolf fur.

"As I am sure you already know," Whitehurst wrote, "the Eastern Timber Wolf is already in danger of extinction, and I am concerned about the fate of other members of the wolf family. Some time ago, the Defense Supply Agency had planned to order about 25,000 wolf pelts for use on parka hoods, but after hearing from me and a number of others, changed their specifications to call for synthetic fur instead, fur which research showed was not only frost resistant as the wolf fur but was also flame resistant and thus safer. I would hope you might consider using synthetic fur which we make so well, instead of wolf fur."

The Interior Department says the existence of four types of wolf is threatened in the United States, and places the wolves on the Threatened Wildlife List, published in 1973.

"In 1973," Whitehurst wrote the President, "I introduced HJR 119, which called for an immediate moratorium on the killing of the Eastern Timber Wolf through an agreement with Canada. I would be deeply grateful to you if you would see fit to ask Canada to accede to such an agreement."

Also in 1973 Whitehurst introduced H.R. 1271, a bill requiring the Secretary of the Interior to make a study of the wolf in order to develop adequate conservation measures. The bill has been referred to the Committee on Merchant Marine and Fisheries. Whitehurst says the legislation is needed because Congress should legislate from knowledge, not hearsay. The wolf has become a victim of its own mythology he says, giving it a reputation and image that it does not deserve. Whitehurst has urged the Committee to act on the bill, and asks those supporting the bill to write requesting Committee consideration.

The Defense Supply Agency order for wolf pelts, if not rescinded, would have resulted in the slaughter of over half the known wolf population. "I had hoped this action would have demonstrated the precarious situation facing timber wolves," Whitehurst says. "To have a famous personage wearing a coat made from the skins of this threatened species is certainly not helpful to the cause of those of us interested in preserving, conserving and finding sanctuary for this harassed animal," Whitehurst says.

S U B S C R I P T I O N F O R M

Subscription rate for Animal Keepers' Forum is \$5.00 per year (January - December).
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SUGGESTED READING

Field and Stream, Vol. 79, No. 9, Jan. 1975, pp. 34-37, 55-59, Samson, Jack, "Hunting with Hawks." Those with an interest in raptors may find this article interesting, though it is written primarily for sportsmen.

International Wildlife, Vol. 5, No. 1, Jan.-Feb., 1975, pp. 12-17, Caras, Roger, "Zoos of the Future." Fascinating reading about expectations for the coming times of zoos.

FOR YOUR CALENDAR

National Wildlife Federation's 39th Annual Meeting, Pittsburgh, Pennsylvania, March 14-16. For more information write: Secretary, Dept. N.W., National Wildlife Federation, 1412 - 16th Street, N.W., Washington, D.C. 20036.

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LIONS KILL TWO IN FRANCE

submitted by Umberto A. Porta, Philadelphia Zoo

The director of the zoo in Frejus and one of his assistants were killed and partially eaten by four lions January 12th. The lions were subsequently shot and killed. Officials said the men normally drove into the zoo's lion park in a car, but chose to walk into the enclosure. The reason for their move is unknown. The lions suddenly attacked them and the animals were shot as they devoured the bodies. Frejus is west of Nice, on the Riviera. French veterinarians called the killing of the lions unjust. (UPI)

GRIZZLY BEAR TO BECOME THREATENED SPECIES

The United States Fish and Wildlife Service is taking steps to list the grizzly bear (*Ursus arctos horribilis*) as a threatened species. The action comes after the Fund for Animals, Inc. petitioned the Department of the Interior to place the animal on the endangered list. The Department subsequently found sufficient evidence to warrant consideration as a threatened species. The move has only been proposed. Interested persons may participate in the procedures by writing comments (in triplicate) to the Director, U.S. Fish and Wildlife Service, P.O. Box 19183, Washington, D.C. 20036. (Federal Register)

PEREGRINE FALCON RECEIVES TAIL FEATHER TRANSPLANT

A female peregrine falcon, shot near Hibbing, Minnesota, rubbed off some tail feathers recently while recuperating in a veterinarian's cage. On Friday, January 5, the bird received twelve tail feathers during a transplant operation at the University of Minnesota at St. Paul. The replacements were donated by the Cornell University Ornithology Laboratory. The operation is called "imping" and was performed by Dr. Patrick Redig, a veterinarian, Dr. Gary Duke, an avian physiologist and Mark Fuller, a grad student in the College of Veterinary Medicine. The bird will be released in Texas this month, but is scheduled to receive 30 days' training prior to that time. (AP)

USDI BANS KANGAROO IMPORTS

submitted by Umberto A. Porta, Philadelphia Zoo

The Department of the Interior announced that after January 29th, commercial imports of three kangaroo species will be banned. The action was taken concurrent with a move by the Australian government, which has banned export of the Red, Eastern Gray and Western Gray kangaroos. (UPI)

AMANDA BLAKE WINS FIGHT FOR CHEETAHS

"Miss Kitty" of TV's Gunsmoke series recently was charged with keeping wild animals illegally. Miss Blake keeps a lion (declawed), a leopard, four leopard cats, and ten cheetahs--five of which are cubs born in December. A Phoenix businessman made the charges during December. Miss Blake appeared before the Arizona Fish and Game Commission last month and produced valid permits for all of her animals. A live-in couple cares for the cats.

ZOO MANAGEMENT TRAINING PROGRAM*by John Wortman, General Curator, Topeka Zoo*

Over the past few years, several colleagues in the zoo profession have indicated an interest in the Topeka Zoo's management trainee program. Many individuals have the idea that our zoo maintains a crash management course. A course that is open to everyone, and that gives forty hours of high-powered weekly training sponsored by a staff involved only in the eventual graduation of students after a certain time period. This would be an ideal situation in many ways, however it is not what we at Topeka are able to offer. At the same time, I believe that we are providing a program that is a definite enriching professional experience.

A so-called management trainee program has existed in Topeka for over five years. Some of the people that were involved in the original program are now in supervisory posts in other zoos. In virtually every instance these people advanced independently of the trainee position. At that time the management trainee job slot was significant only in the fact that it paid more than the other animal keeper positions and the job title contained the word management in it. This helped to point out the fact that the animal keepers involved in the program possessed a college degree and could qualify for a supervisory post in Topeka or elsewhere. The personnel that advanced in Topeka or other zoological institutions attained their promotions through their natural abilities and successes as an animal keeper, publication of zoo articles, and probably the highest ranking reason of all, the good reputation of the Topeka Zoo. The actual supervisory experience in administration and management decision-making was lacking. Certainly, observations of management is an important aid. But, the only realistic pathway to beginning to understand the complexities of management is to be a part of that decision-making body and perform the same tasks as supervisory personnel.

It is a fact that every position in the zoo is important to the total operation. There has to be a dedicated, highly competent animal keeper staff associated with all modern zoological parks. It would be unrealistic and unreasonable for every animal keeper to desire higher level supervisory duties. Therefore, for all of those wishing to remain in the animal keeper ranks, an admirable decision has been made. One should not be pressured or feel pressured into leaving a rewarding occupation for a higher post in the organization.

At Topeka, we presently have three trainee positions. Should a vacancy occur, the qualifications are a college degree or three years' zoo keeping experience. All of the trainees are given at least one day per week to function in some capacity with the Director, General Curator or Zoologist. The trainee performs as a regular animal keeper the rest of the week. This is important because an understanding and appreciation for the animal keeper is developed and intensified along with becoming educated in the inner-workings of our zoological park. The trainee becomes familiar with everything from restraint equipment to purchase order procedures. The person is expected to publish articles, perform duties in public speaking, and carry out a variety of miscellaneous animal-oriented projects. Possibly the best indoctrination is the opportunity to occasionally become supervisor of a particular area or for that matter the whole zoo. Here the decision-making authority and total responsibility is placed squarely on their shoulders.

Certainly a program of this nature cannot function without support of the zoo director and other zoo supervisors. It gives the supervisor a chance to observe each trainee in action and to promote individuals that have proven themselves, or to recommend with confidence a person to a supervisory post at another zoo.

A piece of advice is in order for those that are killing time or are becoming impatient to move up the organizational ladder after only a year or two as an animal keeper. Don't be in such a hurry. A truly enlightened and prepared individual receives many

(cont'd)

(cont'd)

basic zoo concepts as an animal keeper. This can only be achieved by working and becoming proficient in several areas of the zoo. It takes from three to five years to attain this level of experience. Those who develop a fairly broad and experienced level of knowledge to draw from in later years will be appreciative of the background they have acquired as an animal keeper.

* * * * *

FROM MIKE DEE, LOS ANGELES ZOO

If anyone is interested, I will be happy to keep an eye out for used books on animals, zoos, etc. If you have a book you are interested in, please send me the title, author and date published and I will try to find it for you. Your only price is what I have to pay for the book plus shipping. Write: Mike Dee, 1141 Western Ave., Glendale, CA 92101.

* * * * *

OF VETERINARIANS AND KEEPERS

by Mike Stoskopf, Ft. Collins, Colorado

The goal of this column is quite ambitious. It is an attempt to create a better understanding between two valuable allies in animal care -- the Keeper and the Veterinarian. I presume to be suited to this task on the sole basis of having been on both sides of the fence. Depending on how you view it, I have either progressed or regressed from a very junior keeper who had no use for the obviously ignorant veterinarian...to the obviously ignorant veterinarian!

The material I will write about will be drawn from questions asked by friends or from subjects I feel compelled to explain. Questions you have or topics you might want to suggest will be gratefully received. Hopefully, they will form the basis for future columns.

Now, let me address a philosophical question, rather than a medical or scientific one. Of what value is the zoo veterinarian? When I worked my animals, I always felt it was exceedingly futile to call the veterinarian when one of them became sick. When I did, the first thing I had to do was convince him that my animal was sick (something I knew from a hundred yards off). That done, we would sit and watch it grow worse together. It never seemed like the vet did anything to help. So, why bother him? Sometimes, I even became convinced the vet did not care...if he did care, he certainly would do something! Since I cared, I decided to try my hand as a veterinarian. During the transition, I discovered the basis for many things I had not comprehended before. Zoological medicine is in its infancy. Thus, the people working in it find themselves tackling an immense chore with very inadequate tools. No veterinary school teaches what to do when a sealion refuses a meal. A vet's training does not include the receipt of magical, secret knowledge about animals and disease; it only provides a framework of thought processes. Fueled with common sense, the framework allows a person to appreciate the complexities of a situation and come to a better decision on a course of action.

The zoo veterinarian does care, but works with scant, very incomplete data in trying to keep an animal healthy. When an endeavor fails and an animal does become ill, a veterinarian tries to provide clinical assistance. However, once that point is reached, the battle is already uphill. The goal of the zoo veterinarian is the same as that of the keeper...to keep the animals healthy. Vets make mistakes. Some have the personality of a baboon in mensus, but keepers are not all Mister Personality, either. As keepers and veterinarians are working toward the same goal. We can benefit ourselves and our animals only by working together and sharing our discoveries.



BIOLOGICAL PARKS TRAINING PROGRAM

by Mrs. Joseph S. Vandiver, Gainesville, Florida

Animal Keepers' Forum received an enthusiastic welcome at Santa Fe Community College in Gainesville, Florida. The first two issues have been read with much interest by students and instructors in the Biological Parks Training Program.

A description of this training program may be worthwhile for the other readers of AKF since it is a formal course of instruction for students interested in animal care. Emphasis in the program is placed on preparation for work in zoos. The program began in September 1970 and for its first four years, it was available only to college students. In September 1974, certain courses at the college, including Biological Parks, were opened to selected high school seniors. The addition of the high school students has approximately doubled the program's enrollment.

Classroom instruction provides detailed information about zoos and about animals. Zoo history, zoos of today, trends in zoo thought from ancient times to the present, and the points of view of many persons currently prominent in the field are taken up in detail. Animals are studied from several standpoints: distribution, ecology and conservation, evolution, morphology, taxonomic relationships, and practical aspects of care. The three classes of animals which are displayed at the zoo are studied in separate courses: herpeticulture, aviculture, small mammal culture and large mammal culture. Although no fish are as yet exhibited, there is also a course in aquarium culture. Other subjects include zoo education, zoo architecture, animal nutrition, animal breeding and wildlife biology.

A "Teaching Zoo" has been developed to serve as the laboratory for the program. Feeding, watering, cleaning, health checks, habitat building and repair are all carried out by the students under supervision. Animal assignments are rotated in order to provide each student with experience in handling as many different species as possible during his or her training.

A certificate is awarded to each college student who successfully completes 24 hours of program courses; because the courses are classified as vocational-technical education, they do not carry academic credit. The student who wishes to continue his formal education at a four-year institution may earn a transferrable Associate in Arts degree along with the Parks certificate by taking the required number (60) of transferrable hours, in addition to the 24 hours of Parks courses.

The zoo is an eight-acre tract of wooded land, adjacent to the main campus of Santa Fe Community College. It is currently in the first stage of a three-phase development plan. With very few exceptions, the animals displayed are from the New World, that is, North, Central and South America. The park is open to the public without charge; tours are available for school and other groups.

A training course for docents was begun in the fall of 1974 and will be offered again in the spring of 1975. Docent service offers a way for interested volunteers to assist the zoo and it also greatly reduces the amount of time which the limited zoo staff must take from other duties in order to conduct tours. Overall enrollment, including college students, high school students and docent trainees, in the fall of 1974, was above 100.

From the beginning, interest in the Biological Park has been high. It is hoped that continued favorable response from students and townspeople, together with the physical development of the park now under way, will lead to an educational and recreational institution of highest quality.

"VETERINARIANS FOR ZOOS AND WILD ANIMALS"

is a handbook listing veterinarians with knowledge and experience of health problems in exotic animals. The veterinarians are listed alphabetically and by animal and medical areas. The book is intended as a guide for anyone seeking specific advice for treating exotic animals. Copies are available, free of charge, to anyone working in zoos or with wild animals from: Morris Animal Foundation, 531 Guaranty Bank Building, Denver, Colorado 80202 (*J. of Wildlife Dis.*)

FROM THE AKF STAFF

AKF is designed as a communications vehicle for professional animal keepers. The newsletter will provide an exchange of ideas, experiences, and observations. We hope that all professional keepers will utilize this vehicle whenever possible.

We welcome any and all articles submitted for publication and encourage everyone to make an effort to become involved in supporting professional animal care. Send all news items and articles to: AKF Editorial Staff, Topeka Zoological Park, 635 Gage Boulevard, Topeka, KS 66606.

ARTICLES PRINTED IN THE AKF MAY NOT NECESSARILY REFLECT THE VIEWS OF THE AKF STAFF.

AKF - AAZK PROPOSAL

We have not as yet received a response, either positive or negative, to our proposal to serve as the official vehicle for communication within the American Association of Zoo Keepers. We Hope this proposal will be taken to heart by the Board of Directors and a constructive proposal may become reality.

 S U B S C R I P T I O N F O R M

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If you're already a subscriber, encourage a friend or co-worker to subscribe.



SUGGESTED READING

Smithsonian, Vol. 6, No. 1, Jan. 1975, pp. 77-81, Teleki, Geza and Baldwin, Lori, "Breeding programs aim to keep this a planet of the apes."

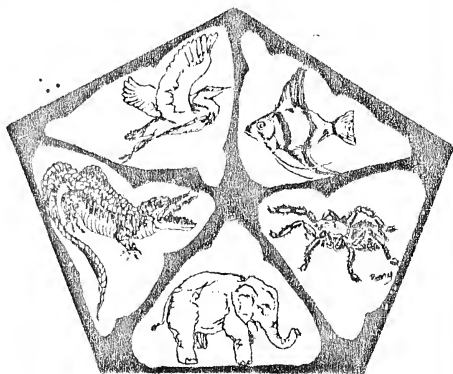
Natural History, Vol. 84, No. 1, Jan. 1975, Homewood, Katherine M., "Monkey on a Riverbank." The life history of the rare Tana Mangabey (Cercocebus g. galeritus) found near the Tana, Kenya's longest river.

Amphibians and Reptiles in Kansas, Collins, Joseph T., 283 pages. Copies of this book may be obtained from the Publications Secretary, Museum of Natural History, The University of Kansas, Lawrence, Kansas 66045. Price: \$5.00, postpaid.

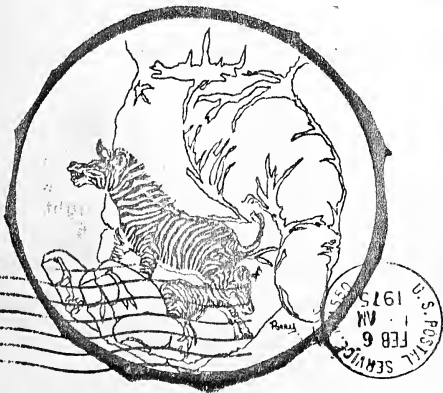
Newsweek, Jan. 6, 1975, pp. 36-41, "Wildlife in danger - Zoos: the last frontier".

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March 1975

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FROM THE AKF STAFF

The proposal that Animal Keepers' Forum act as the official publication for the American Association of Zoo Keepers has been accepted by that organization's Board of Directors. Under terms of this agreement, Animal Keepers' Forum will be distributed to all members of the American Association of Zoo Keepers as a service to its members. AKF will include all official AAZK news and announcements formerly published in The Keeper. AKF will continue to be available by subscription to those professionals who are not AAZK members. Although there will be a slight change in format, AKF will remain a monthly publication.

News items and articles for publication may be sent to the AKF Editorial Staff, 635 Gage Blvd., Topeka, KS 66606.

* * * * *

AKF STAFF

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"Animal Keepers' Forum" is a non-profit monthly publication distributed to professional zoo keepers independently, and by the American Association of Zoo Keepers as a service to its members. "Animal Keepers' Forum" includes news and official announcements of the American Association of Zoo Keepers, formerly published in "The Keeper".



AMERICAN ASSOCIATION OF ZOO KEEPERS

8415 BACARDI AVENUE WEST
INVER GROVE HEIGHTS, MINNESOTA 55075

AAZK UPDATE

by Rick Steenberg, Executive Secretary, AAZK

This issue of "Animal Keepers' Forum" is being sent to all 1974 members of the American Association of Zoo Keepers, as well as to all current members. Constitutionally, we must service last year's members for sixty days into the new year. However, note that this will be the last issue you'll receive unless you renew your membership. We hope to bring a lot of activity to our Association but cannot without active members. We'd like to uplift the quality and professionalism of our Association but cannot by dropping out. We need you---renew; it's only ten bucks a year!

As you know, Dick Sweeney, Executive Secretary and moving force behind AAZK since its inception in 1967, has resigned to pursue interests incompatible with the time-consuming chores of running the daily affairs of the Association. Dick will remain a member and will serve as an advisor to the President and the Board of Directors. His absence will be felt for a long time to come. His post as Executive Secretary has passed to Rick Steenberg, long-time member, serving as Awards Committee Chairman, Regional Coordinator and member of the Board of Directors. Executive Offices of the Association are now located at 8415 Bacardi Avenue West, Inver Grove Heights, Minnesota 55075. The Executive Secretary may be reached at (612) 454-4705. However, collect calls cannot be accepted as legitimate budget expenses.

Word has reached us from Wichita, Kansas, advising us there will, indeed, be a Midwest Regional Conference this year. The dates to set aside are June 8 through 11. Camping facilities as well as hotel/motel accommodations are expected to be available for outdoor types (and those too broke to afford rooms!). Economy will be stressed, but there will be levity! Bob Hampel reports the folks at the Sedgwick County Zoo pride themselves on their Beccanalian spirits. I'm not sure at this point whether that's good or bad, but just in case, let's all go inundate them with professional papers and good company! Information will be printed in the AKF as it becomes available.

Elections are due this year, with three openings on the Board of Directors to be filled. Traditionally, there should be more candidates than positions available. If you'd like to serve on the Board of Directors, think about it. Election information will be forthcoming. Incidentally, the three positions to be filled are those held by Ed. Roberts, President, Dewey Garvey and the position formerly held by our new Executive Secretary, Rick Steenberg.

Meanwhile, back at the publishers. Since your newsletter, you suddenly find, is called the "Animal Keepers' Forum", some of you are wondering what has (or is to) become of "The Keeper". It is anticipated that it will not disappear, but will, instead, become a journal, either annual or semi-annual. Composed, perhaps, of papers on one subject or area - like Great Apes, Ungulates, or whatever. It is hoped such a journal could be printed professionally on "slick" paper and paid for by commercial interests, thereby defraying the cost to the keepers. What think you of the idea? Let's hear from you. That's how a successful operation gets off the ground -- ideas.

Read this AAZK UPDATE again. See if you don't think we've something to offer. Join. Or renew. We're sure you'll get something out of it that's worthwhile. That's what a professional association is for.

WORLD WILDLIFE FUND AWARDS \$50,000 CONSERVATION PRIZE

The J. Paul Getty Wildlife Conservation Prize went to Felipe Benavides, of Peru, for his work to save the endangered vicuna. Benavides is also the president of the Lima Zoo, founded in 1963. He was selected from among 525 candidates from 42 nations.
(Marlene Merritt, WWF)

NEWS FROM LOS ANGELES

by Mike Dee, Los Angeles Zoo

Animal Keeper Bob Barnes is working in the zoo curators' office as an acting associate curator. He is the first keeper to work in that capacity and will be there for a period of six months. Other keepers will also have a chance to work with the curators when Bob's six months are up.

JOHN JOSEPH REGAN DIES

AKF is sorry to learn of the death on February 10 of John Joseph Regan. Mr. Regan had been employed by the Philadelphia Zoo for 69 years...from July, 1902 until his retirement in 1971. He served as a head keeper for 13 of those years. He was 84 when he died.

KEEPER KILLED BY CAMEL

Vincent Dolan, a keeper at the Slater Park Zoo in Pawtucket, Rhode Island, was killed February 7...apparently trampled by a camel. Dolan, age 60, had worked at the zoo for 18 months. He was killed by a four-year-old male dromedary camel, weighing about 1,500 pounds. The animal was still excited when Dolan's body was found early the next morning. Efforts to tranquilize the camel failed and it was shot to death. A necropsy was to be performed on the animal at the University of Rhode Island to determine the cause of the incident. (UPI)

INTERNATIONAL PRIMATE PROTECTION LEAGUE

The International Primate Protection League is a recently founded organization concerned with the conservation of all species of primates. The group is especially concerned with the illicit trade in primates and conditions in captivity. Inquiries about the organization may be sent to 1224 Bonita, Berkeley, CA 94709. (Oryx)

BOOK REVIEW

by Dave Ruhter, Topeka Zoo

"The Capture and Care of Wild Animals", edited by Dr. E. Young; Human and Rousseau, Cape Town and Pretoria, 224 pp.

As a good, informative and current text on immobilization and restraint, "The Capture and Care of Wild Animals" is one of the best books available. The book gives a comparison of current drugs and practical information related to their use.

I was somewhat disappointed with the section dealing with mechanical restraints. They dealt very briefly with this subject, which could have been expanded greatly.

The third of four sections deals with transport, accommodation and nutrition with many practical zoo applications. The final section on Post Capture Complications and Treatment reviews the various hazards involved when handling exotic animals.

While the book doesn't offer a definitive work on these subjects, it is easily read and contains a great deal of information useful to zoo professionals. The South African Nature Foundation, affiliated with the World Wildlife Fund should be complimented for this project, as well as the Wildlife Group of the South African Veterinary Association and the Southern African Wildlife Management Association for compiling the data. This is must reading for all keepers desiring to be well informed.

CURRENT STATUS OF THE ARABIAN ORYX WORLD HERD*from the Phoenix Zoo*

The Arabian oryx (Oryx leucoryx Pallas) is a small creamy-white antelope with light and dark brown markings. Most noticeable are the long (up to 27 inches long) rapier-like horns. Originally this animal ranged over the entire Arabian Peninsula and northward into Sinai, Palestine, Jordan, Syria and Iraq. Hunted for "sport" and food in addition to being mindlessly slaughtered, they are now probably extinct in the wild. If some still survive in nature their population is most likely reduced to such a low number that they do not constitute a viable reproductive unit. The conservation and preservation of this species clearly rests in the hands of man.

"Operation Oryx" was launched in August of 1961 by the Fauna Preservation Society of London. The goal was to capture live animals to establish a captive breeding herd. Three animals were captured and along with a fourth from the Regent's Park Zoo, donated by the Zoological Society of London, the "World Herd" was established at the Phoenix Zoo. Phoenix was selected as a suitable site because of the similarity of climate between Phoenix and their native Arabian habitat. In September 1963 another oryx arrived at the zoo through the courtesy of H.H. Sheikh Jabir Abdullah Al Sabah, the Sultan of Kuwait, which he had presented to the Fauna Preservation Society. Through the efforts of the World Wildlife Fund, the herd acquired four more animals from King Saud of Saudi Arabia. Financing for much of the project, including construction of the oryx pens and related facilities at the zoo was carried by the Shikar-Safari Club.

This conservation project has two main objectives:

1. The establishment of a breeding colony of Arabian oryx in captivity.
2. To re-establish the oryx in a protected and ecologically suitable habitat.

As of the end of 1974, the realization of the first objective is fairly well established. The first captive born oryx of the World Herd was born on October 29, 1963 and the original herd of nine animals has increased to forty-four. There has been a total of fifty births and fifteen deaths within the herd. Six of the original nine have died. The herd is flourishing with many second generation births occurring at the zoo.

To insure that the herd remains genetically fit and that genetic variability is maintained within the population, several steps have been taken. First meticulous breeding records have been kept to insure that in-breeding is kept to a minimum. Breeding males are isolated from the main herd to insure control of breeding. In this way specific matings can be made. A population genetist from Arizona State University has been consulted to make sure that a proper breeding program, genetically speaking, is carried out. Also, an exchange of one male from the World Herd with a female from the Los Angeles Zoo was made. This added a new blood line and increased the gene pool of the Phoenix herd.

In 1972 six of the animals from Phoenix were transported to the Wild Animal Park as San Diego. This in effect separated the herd into two herds and reduced the possibility of a disease of epidemic proportion occurring and eliminating the entire population of oryx. The San Diego herd has had one death but three births have raised their total to eight animals. Thus, in the World Herd, the Phoenix Zoo has thirty-six animals and San Diego has eight for the total of forty-four.

Ownership of animals is based on the following formula. The first animal born to a particular female becomes the property of the owner of the mother. The second animal born of that female becomes the property of the owner of the father. The third born belongs to the breeding establishment (the Phoenix Zoo). All of the participants in Operation Oryx have benefited from this arrangement.

(cont'd)

Oryx Owner	1962-63 (original herd)	1974
Fauna Preservation Society	4	18
World Wildlife Fund	4	8
Zoological Society of London	1	4
Phoenix Zoo	<u>-</u>	<u>14</u>
	9	44

With the good start toward the accomplishment of the first objective the first considerations of the second objectives have been examined.

The curator of the Phoenix Zoo has taken two trips to the middle east to examine potential sites for possible relocation of Arabian oryx in their native habitat. Naturally ecological suitability and guarantee of effective protection of these valuable endangered animals is a prerequisite in any considerations of the implementing of the second objective.

Although much has been accomplished since the inception of Operation Oryx, much remains to be done. There are many possible projects that should be conducted to gain further insight into one of this earth's rarest animals. Enlargement of the herd by selective breeding, establishment of new locations for subsequent herds are some of the needs. Specific display exhibits, apart from breeding enclosures, are needed so that the public may become even more aware of the story of the Arabian oryx. Not only genetic studies of this animal should be made but additional studies of physiology and behavior are required. The more we know about the Arabian oryx, the better we will be able to intelligently keep this animal from becoming extinct and remain as a premier example of our efforts to conserve and preserve some of the world's wildlife.

* * * * *

☐ AAZK Membership -- \$10.00 per year. Includes subscription to AKF. Make check or money order payable to: American Association of Zoo Keepers.

☐ Subscription rate for Animal Keepers' Forum is \$5.00 per year (Jan. thru Dec.). Make check or money order payable to Animal Keepers' Forum.

Name _____

Send to: AAZK Hq. (or)
Animal Keepers' Forum

Address _____

City _____ State _____

8415 Bacardi Av. W.
Inver Grove Heights,
Minnesota 55075

Zip Code _____

Please note: Computerized labelling requires that all addresses be no more than 4 lines, limited to 20 letters per line.

If you're already a subscriber or member, encourage a friend or co-worker to join.

American Association of Zoological Parks and Aquariums 1975 Regional Conferences:

April 1-3	Western	Honolulu, Hawaii
April 20-23	Great Lakes	Louisville, Kentucky
April 27-29	Southern	Knoxville, Tennessee
May 5-7	Northeastern	Turtle Back Zoo, New Jersey
May 18-21	Central	Omaha, Nebraska

ANIMAL KEEPERS' FORUM

DEDICATED TO PROFESSIONAL ANIMAL CARE.



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WORLD'S RAREST BIRD INCREASES POPULATION

from WWF Special Report

In our January issue, AKF reported the hatching and subsequent death of a Mauritius kestrel - the world's rarest bird. At the time the chick hatched, only six individuals were known to exist. Now, the World Wildlife Fund reports that three chicks fledged in the wild during 1974. It is the first time in two years that chicks have fledged successfully in the wild, bringing the total world population to nine, and reinforcing optimism for survival of the Mauritius kestrel.

STATUS OF STUDBOOK REGISTERED SIBERIAN TIGERS (PANTHERA TIGRIS ALTAICA) IN THE AMERICAS 31 MARCH 1970 - 1 JANUARY 1975

Marvin L. Jones

The following is a summary of the above titled paper:

As of 31 March 1970 there were 33 male and 33 female registered Siberian tigers in collections in the Americas. From 1970-1974, 191 Siberian tigers were born in the Americas with 140 specimens surviving. As of 1 January, 1975, there were 89 males and 115 females plus 5 specimens of undetermined sex under 1 year old for a total of 209 specimens.

NEW GORILLA EXHIBIT

from Cincinnati Zoo's PR Dept.

Groundbreaking for the Cincinnati Zoo's unique two million dollar primate display was held Sunday, March 9.

The Display will resemble a semi-tropical forest in which the gorillas will live as a family, roaming free over a single forest clearing approximately 60 X 200 feet in size. Waterfalls will splash into forest pools from which streams will meander through lush living foliage. Only a moat will separate the gorillas from the public, who will view the primates from various points along a pathway through the forest.

"The basic concept of the unique display," explained Zoo Director Edward J. Maruska, "stems from the fundamental desire of the Society and Zoo Staff to eventually place each animal in its natural environment." This goal, Mr. Maruska said, is "both for the animal's own benefit and health as well as for the enjoyment and education of the public."

The project is one of the Zoo's major undertakings during its centennial celebration, being observed throughout 1975. Completion is planned for Spring of 1976.



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NEW BOARD MEMBER ELECTED

Mike Dee, long-time active member from Los Angeles, has been elected by the Board of Directors to serve out the term of office of Gerald (Red) Thomas, San Diego, who has resigned for personal reasons. Mike has long been involved in national activities of the Association and we're sure his input into the affairs of the Board cannot but be constructive. Congratulations, Mike, and welcome!

CENTRAL REGIONAL CONFERENCE IN DOUBT

We regret to have to advise that no definite word has been received from the Sedgwick County Zoo contingent concerning the proposed conference to be held at Wichita in June. As soon as more positive word is available, a special mailing will be sent out advising members of the latest developments. We sincerely hope the problems can be resolved to the satisfaction of all. Meanwhile, perhaps someone out there would like to consider hosting a friendly regional conference at their zoo some time this year.

WESTERN REGIONAL COORDINATOR NAMED

Steve Taylor, a member from Los Angeles, has been appointed to serve as Western Regional Coordinator, helping to further the aims of the Association in his area and serving in tandem with Mike Dee and Red Thomas in organizing the proposed 1976 National Conference at San Diego.

FIRST QUARTER TREASURER'S REPORT

Such as it is, here is a breakdown of our income and expenditures for the first quarter of 1975 - to date, March 28, 1975:

<u>ITEM</u>	<u>CREDIT</u>	<u>DEBIT</u>
Received from previous treasurer	128.03	
Dues & Donations received, this office	855.25	
Refund - Dennis Levy, IZN Subscription		8.75
Postage Stamps		50.78
Office Supplies, Stationery and Envelopes		67.10
Animal Keepers' Forum Account		150.00
Membership Cards		19.24
Dues Check returned, Insufficient Funds (+ svc. chg.)		11.00
	983.28	306.87
	-306.87	
	Current Cash Assets \$676.41	

AAZK BIENNIAL ELECTIONS PROCEED

The next sheet in your Animal Keepers' Forum this month contains information pertinent to the upcoming election of AAZK Board members.

Please read the information carefully and respond -- in great numbers. We would like to see a lot more member involvement in national affairs than there has been in the past. Get out and get goin'.

NOMINATION FORM
AAZK BOARD OF DIRECTORS
ELECTION 1975

Nominee _____ Institution _____
Address _____ Phone _____
City _____ State _____ Zip _____

Please explain briefly why you feel the nominee warrants election to the Board of Directors. Include a brief statement of his or her background and experience:

Signature of Nominee

Acceptance: I agree to accept the nomination for election to the Board of Directors and can meet the requirements for a position on the Board of Directors.

Signature of Nominee

PLEASE FORWARD, BEFORE JUNE 30, 1975, COMPLETED FORM TO AAZK ELECTION COMMITTEE, NATIONAL ZOOLOGICAL PARK, WASHINGTON, DC 20009. PLEASE BE SURE FORM IS PROPERLY COMPLETED AND SIGNED BY THE NOMINATOR AND THE NOMINEE.

GUIDELINES FOR NOMINATIONS:

1. Nominee must be an AAZK member in good standing (current dues paid).
2. Must be a full time keeper or attendant in a zoo or aquarium in U.S. or Canada.
3. Nominee must agree to uphold the constitution of AAZK, and must agree in writing that he/she adheres to AAZK policy that the Association is not a labor organization, and must not be utilized as such.
4. Nominee must agree to travel to Board meetings (usually in conjunction with a national or regional conference) at his or her own expense.
5. Must agree to devote time to correspondence pertinent to all Board business.
6. Must be willing to answer correspondence promptly and efficiently.
7. Must be willing to accept committee assignments.

The Election Committee, comprised of five members of AAZK, will choose three or more nominees, who will oppose incumbent members of the present Board of Directors who agree to run for re-election.

Each candidate will serve a four-year term upon election.

Elections will be by written ballot, mailed to the Election Committee. Ballots, including resumes of each candidate will be mailed to all eligible voting members, at least 30 days prior to election deadline.

Nomination forms NOT properly completed or not meeting minimum qualifications will be VOIDED.

Election ballots marked incorrectly or with names other than the nominees, will be VOIDED.

PLEASE NOTE ADDRESS WHERE NOMINATION FORMS ARE TO BE MAILED. ALSO, PLEASE NOTE DEADLINE DATE FOR NOMINATIONS.

Election instructions will appear in the Animal Keepers' Forum. Please follow all instructions to insure validity of your vote.

* * * * *

"JOB DESCRIPTION FOR MEMBERS OF THE BOARD OF DIRECTORS"

Article III of the By-Laws of the AAZK:

Duties of the Board of Directors

Section 1. To confirm appointments made by the President.

Section 2. To control and manage the Association and its property, passing upon acquisitions and disbursements with approval of a simple majority of the Board.

Section 3. To formulate policies, rules and regulations in accord with the Constitution and these By-Laws.

* * * * *

GUEST EDITORIAL

Ron Blakely, Director, Sedgwick County Zoo, Wichita, Kansas

Thank you for asking me to write an editorial for "Forum". It is more than a little difficult to decide on a topic since there are so many problems facing zoos these days. I think it is unnecessary to go into the ominous area of Federal regulations and legislation. I'm sure that you all know how severely threatened the very existence of zoos is at the present time. And that you are aware of the fact that zoos are undoubtedly the most Federally controlled profession in this country.

You are also undoubtedly aware that some protectionist groups are actively--and rabidly--spending much money and much breath in attempting to destroy the reputation and credibility of good zoos. Sadly, the people behind these efforts have an unrealistic and uninformed view of what animals really are and what their true needs are. One of the great mistakes they make is to believe that animals feel as they do. Unfortunately for them, animals are generally more realistic and generally less emotionally unstable than are these self-styled champions of their cause. The protectionists, the zoos and most importantly, the animals themselves would benefit so much more if those who claim such heartfelt concern would expend some of their energy in actually investigating and learning what and who our fellow creatures are.

Assuming then, your familiarity with the above situations allow me to pose some questions--what have you, as an individual, done to correct those situations? Do you aggressively but tactfully correct those who do not present a true picture of zoos and of animals, particularly captive animals? Or do you avoid the conflict because such people are positive, "well intentioned" and probably vociferous and aggressive?

Perhaps the most important aim of a message such as this would be to urge you, and, in turn, encourage you to urge all whom you come in contact with, to write to your Federal representatives and senators. The message can be simple: zoos and aquariums are already too extensively legislated and regulated and that you urge them to not support and vote against any further such attempts. How one motivates people to write such letters, I do not know. I do know that unless such letters pour in by the hundreds to the people in Washington, there will be even more stringent controls imposed upon us. More red tape to impede our important work. And more Federal bureaucracies to answer to. This wouldn't be so bad if the bureaucracy worked as efficiently and with as clear purpose as most zoos do--but such will never be the case.

Zoos can be saved. Only those who know and respect them can save them. That's you and those you can inspire to action.

Zoos are worth saving--and you are the one who can do it.

Ed. note: Mr. Blakely is current President of the American Association of Zoological Parks and Aquariums.

* * * * *

NUTRITION RESEARCH PROJECT

from Boston Zoological Society Press Release

Tom Foose, a graduate student from the University of Chicago, is studying the efficiency with which certain ungulates digest food. He is examining how well ruminants utilize their food, compared to non-ruminants. Foose is conducting part of his research at the Franklin Park Zoo, Dorchester, Mass. The title of his research program is "Trophic Strategies of Ruminant versus Non-Ruminant Ungulates". His research is testing evolutionary theories covering 50 million years. Foose believes that non-ruminant forms are on the decline, that the ruminant digestive system is a more efficient processor of vegetable fodder, and a better system for protecting the animal against plant poisons.

OF VETERINARIANS AND KEEPERS*Mike Stoskopf, Ft. Collins, Colorado*

Abbreviations are convenient for a writer, but they often hinder communication if the reader isn't aware of the code the writer is using. One common example of this, found quite often on the veterinarians' instruction sheets, is the code for the route of administration of a drug. The codes make sense only if you have an idea of what they mean beforehand.

There are six common routes of administration for drugs used in zoo animal medicine--each with its own abbreviation. They are oral (per os), intradermal (I.D.), subcutaneous (S.Q. or sub-Q), intramuscular (I.M.), intraperitoneal (I.P.) and intravenous (I.V.).

"Per os" or simply "os" indicates that a medication is to be given orally. Whether the substance is eaten, drunk or passed by stomach tube, it is considered to be "per os". Drugs administered this way must either be absorbed by the gut or must act locally in the gut to be of any use to the animal. Therefore, drugs which would be destroyed by the stomach acids or those which would pass through the stomach without being absorbed or exerting a local effect, would be useless.

Less commonly used is the "I.D." route of administration. This is an injection between the layers of the skin, roughly analogous to injecting into a piece of leather. This route is used if very slow absorption of the drug is needed. Common treatments given I.D. are the early equine encephalitis vaccines and T.B. tests.

Injection one layer deeper is giving a drug "sub-Q", meaning under the skin. Drugs placed sub-Q are absorbed faster than I.D. injections, but slower than other routes. In most animals, a greater volume of drug can be injected via this route and the injection may be easier to accomplish.

"I.M." shots are injections directly into muscle and are absorbed faster than any route previously considered. "I.M." is the route used with dart guns and pole syringes. A great variety of drugs can be administered this way, however, some drugs are so irritating that I.M. injection causes the muscle to die around the site of the injection. I.M. injection of great volumes of drug may also destroy muscle tissue.

If a drug is not extremely irritating and if very fast absorption is desired, then "I.P." injection may be the choice in a hard to handle animal. This is an injection into the peritoneum. The peritoneum is a membrane lining the abdomen which absorbs drugs very rapidly, almost as fast as "I.V."

The absorption referred to is absorption into the blood stream where the drug is carried to the side where it's action is needed. The fastest route of absorption then would be into the blood supply itself, or "I.V." Drugs administered this way, however, must be of the right pH, osmolarity, and nature so as not to cause destruction of the blood. This is important because the body will be given no opportunity to alter such a substance before it reaches the blood.

Many drugs can be administered in more than one way. It then becomes necessary to weigh the advantages of the different routes of administration possible against the disadvantages. There are few hard and fast rules to work with and choice of site is often more art than science.

ZOO ANIMALS GET A BREAK!!

According to a brief in Today's Health magazine, the metropolitan government of Tokyo has taken pity on its zoo residents. Apparently, there has been a surge of "nervous breakdowns" among the animals. Preliminary studies show the cause to be an overexposure to humans. The antidote? Tokyo zoos will close two days each month.

PHYSICAL THERAPY ON A WHITE-BEARDED GNU

Arthur L. Wolz, Jr., Ranger, Lion Country
Safari, Doswell, Virginia

On October 7, 1974, Lion Country Safari, Doswell, Virginia, received one female white-bearded gnu (*Connochaetes taurinus*). During the capture and transportation several mistakes were made, which brought on complications for the gnu, named Melissa.

When Melissa reached her new home, she was exhausted and extremely hot. She was unloaded very carefully and placed in a holding pen for observation. The veterinarian treated the gnu for mild shock and high body temperature, we could see she had been under enough stress so we decided not to add to her problems, and we left her alone.

The next day the gnu was still alert and able to move around some, but her front legs were stiff. To add to her problems, around 10:00 a.m., she started passing large amounts of uterine blood. This continued for a day and a half for reasons unknown to us, however, it is possible she was in season at the time of shipment.

The third day she was down and unable to get up. All grain, water and hay had to be brought to her. She ate poorly for the next several days. Our veterinarian gave her antibiotics and medication to help her sustain life. During this time she was also moved into a shelter. Finally she began to eat more grain and hay, but she still could not get up, despite much effort on her part. We decided to administer physical therapy.

On October 15, 1974, Melissa was given her first walk. It took six of us to exercise her. Two people would guide her and hold those very sharp horns. Two people in the rear were used to help lift her. Then two people used a burlap bag which was placed under her abdomen. We would then lift her up and help her walk about 20 yards each day. After she was up and moving, the burlap bag was removed so that she would not want to lay down due to pressure on her abdominal muscles.

When the weather was pleasant, we took Melissa out in the mornings and left her outside on a straw bed. Before dusk she was brought back into the shelter. One day after Melissa had been taken outside, we found her back inside her shelter. She had crawled and partially gotten up on her haunches to get back inside. It was decided to increase her walking distance and time since we now believed the therapy was working.

On the morning of October 22, 1974, we found Melissa out of her shelter and moving around with a considerable limp which improved over a period of weeks.

Melissa is alive and doing rather well at Doswell, Virginia. She has a companion with her now, and we are looking forward to increasing our white-bearded gnu herd in the future.

* * * * *

NUTRITION COLUMN

Next month, AKF will begin a monthly column on animal nutrition. The column will have a question and answer format. Questions from AKF readers will be answered by Dr. Richard S. Patton, presently Director of Research for Theracon Inc. of Topeka, Kansas. Theracon is involved in the research and development of Zu/Preem products.

Dr. Patton received his B.S. in Liberal Arts from Penn State (1968), M.S. in Reproductive Physiology from Purdue (1970) and Ph.D. in Nutrition from Virginia Tech. (1972).

All AKF readers are encouraged to send questions on animal nutrition and feeding problems to the AKF Editorial Staff. We will forward the questions to Dr. Patton, and print his replies in this column.

FROM THE AKF EDITORIAL STAFF

AKF is a professional animal keepers' newsletter written by keepers, for keepers. The quality of articles written by readers will determine the quality of the newsletter. Therefore, the AKF editors would like to make some suggestions to prospective authors:

The following is a list of suggested categories for papers. This outline is a guide to only a few subjects; there are many other possibilities.

- | | |
|---------------------------------------|-----------------------------|
| I. News Items | C. Breeding behavior |
| A. New exhibits | D. Social interactions |
| B. Significant births and hatchings | E. Unusual behavior |
| C. AAZK Chapter activities | |
| D. Zoo happenings of general interest | IV. Education |
| II. Animal Care Techniques | A. Keeper training programs |
| A. Diets and feeding | B. Public speaking programs |
| B. Capture and handling | C. Zoo seminars |
| C. Identification and marking | D. Research projects |
| D. Hand raising baby animals | V. General Zoo |
| III. Behavioral Observations | A. Job safety |
| A. Births, hatchings; observations | B. Conservation projects |
| B. Nesting or denning behavior | C. Exhibit techniques |
| | D. Veterinary case reports |

When writing your paper these suggestions may be helpful in improving the quality of the article:

1. Title should reflect content of paper.
2. Make detailed observations and avoid generalities.
3. When recording behavior, note animals' actions and try to avoid incorrect interpretations.
4. Avoid anthropomorphism; be objective.
5. Include pertinent data, ie, times, dates, weather, type of enclosure and animal's history.
6. Be concise; avoid run-on sentences.
7. Criticism should be followed by constructive suggestions.

We hope these suggestions prove beneficial to you and will help stimulate participation in professional communication. We encourage all AKF readers to submit news, articles, book reviews, comments on the vet. column, and suggestions to the editors.

All articles submitted to AKF are subject to editing, without change to material content, before publication.

AKF Editors, 635 Gage Boulevard, Topeka, Kansas 66606.

RECOMMENDED VIEWING *from the World Wildlife Fund*

"Magnificent Monsters of the Deep" (Wednesday, April 30 from 8-9 P.M., E.S.T. on CBS)
This is the story of Dr. Roger Payne, who has dedicated his life to the pursuit and protection of the right whales in the waters off Patagonia, north of Cape Horn.

"The Great Migration: Year of the Wildebeest" (Monday, May 5 from 8-9 P.M., E.S.T. on CBS)
Filmed on Africa's Serengeti plains, this program tells the story of one of the world's most remarkable spectacles, the annual migration of almost a half million wildebeest in their search for food.

A NOTE FROM THE KEEPER OF THE RECORDS*Judie Steenberg, St. Paul, Minnesota*

Last month the energies of the AKF publication and subscription staff were put to the test. 880 copies of AKF were mailed to current subscribers, 1974 and 1975 AAZK members. This called for cross checking and re-checking lists and labels to be sure no one was missed. Beginning with this issue, AKF will be mailed only to current AKF and AAZK people and the task will be easier, but.....YOU can help.

We want to give you the best publication we can and still stay within the limits of our resources. Our procedure is as follows: AKF is put together and edited by the Editorial Staff at the Topeka Zoological Park, Topeka, Kansas; they make an effort to have the copy arrive here (Inver Grove Hts., Minnesota) by the 25th of the month; we type the final copy, print and mail AKF as soon as possible - our mail date is the first of the month. AKF is mailed bulk-rate which means tremendous savings (400 copies can be mailed for \$7.20 per month instead of \$40.00 per month 1st class), but the mail service is a little slower.

You should receive your copy of AKF by about the 10th of the month - if you have not received an issue by the 15th-20th, let us know!

This month, a flyer has been attached to some of the issues for the purpose of checking on how long it takes AKF to be delivered to various locations. If your copy has one attached, please return it as soon as you can.

You can also help by sending in any change of address as soon as you move. Bulk-rate mail is not forwardable and we do not want you to miss receiving an issue. Send your address change to 8415 Bacardi Av. W., Inver Grove Heights, MN 55075.

One last item, if you have sent in \$5.00 for an AKF subscription and also \$10.00 for membership in the AAZK, you should have received a letter with your March issue of AKF regarding a refund. If you didn't, let me know.

1975 has all the earmarks of a progressive, successful year for the profession of animal keeping. Thank you for your cooperation. All of us working together can make it work.

* * * * *

ARTICLES PRINTED IN THE AKF MAY NOT NECESSARILY REFLECT THE VIEWS OF THE AKF STAFF.

* * * * *

☐ AAZK Membership -- \$10.00 per year. Includes subscription to AKF. Make check or money order payable to: American Association of Zoo Keepers.

☐ Subscription rate for *Animal Keepers' Forum* is \$5.00 per year (Jan. thru Dec.). make check or money order payable to *Animal Keepers' Forum*.

Name _____ Send to: AAZK Hq. (or)
 Address _____ *Animal Keepers' Forum*
 City _____ State _____ 8415 Bacardi Av. W.
 Inver Grove Heights,
 Minnesota 55075
 Zip Code _____

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ANIMAL KEEPERS' FORUM

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ANIMAL KEEPERS' FORUM

DEDICATED TO PROFESSIONAL ANIMAL CARE.

VOLUME II, NUMBER 5

MAY 1975

NEWS FROM THE CALGARY ZOO

Robert Peel, Calgary Chapter, AAZK, Calgary, Alberta

Appointments & Promotions: There have been a number of recent staff changes at the Calgary Zoo. The City of Calgary announced the appointment of Interim Director Peter Karsten to Director of the Zoo. Greg Tarry moved from Assistant Foreman to Technical Assistant. Ape House Keeper Terry McDonald won the competition for Assistant Foreman. Apprentice Keepers George Halmazna and David Banks were assigned the monkey section and the animal records section as Acting Keepers.

Joint Project with Valley Zoo, Edmonton: A joint project between the Valley Zoo and the Calgary Zoo was completed in March. The project enabled Edmonton keepers to tour Calgary facilities and to work with zoo personnel. Possibilities of future keeper exchanges are being investigated.

BUFFALO ZOO FORMS AAZK CHAPTER

James J. Perry & Ronald D. Geiger, Co-chairmen,
Buffalo Zoological Gardens AAZK Chapter, Buffalo,
New York.

With a nucleus of 9 AAZK members and more to come, the newly formed Buffalo Zoological Gardens Chapter of the AAZK had its first regularly scheduled monthly meeting in March. Now the keepers at the Buffalo Zoo have an organization they can participate in that shares their goal of making better animal keepers and enhancing their feeling of professionalism. It is our intention to make regular contributions to the AKF and be an active participant in the AAZK. We invite correspondence from other AAZK chapters and members, and hope anyone in the area will stop in.

THE ZOO WORLD IS SADDENED by the death of Robert Bean, Sr. He died on March 23. Bean was Director Emeritus of the Chicago Zoological Park, Brookfield, Illinois. Bean's father, Edward H. Bean, was the man for whom the AAZPA/AAZK "Bean Award" was named. Bean's son, Robert, Jr., is Director of the Louisville Zoological Garden.

THE AAZK BOARD OF DIRECTORS announces the appointment of Curtis Williams, Meridian, Idaho, to the Board of Directors. Curt, a long-time member of the AAZK, was prime mover in the 1973 Western Regional Conference at Boise. A keeper at the Boise City Zoo, Curt is sure to be a constructive addition to the Board of Directors.



"Animal Keepers' Forum" is a non-profit monthly publication distributed to professional zoo keepers independently, and by the American Association of Zoo Keepers as a service to its members. "Animal Keepers' Forum" includes news and official announcements of the American Association of Zoo Keepers, formerly published in "The Keeper".

AAZK CONFERENCE

David Grow, Sedgwick County Zoo, Wichita, Kansas.

The Midwestern Regional AAZK Conference at the Sedgwick County Zoo in Wichita, Kansas is definitely on. The following is a schedule of events.

Sunday, June 8	1:00 pm - 3:00 pm	Registration in the zoo's lecture room. The registration fee will be \$15.00
	3:00 pm - 5:00 pm	Comprehensive tour of the zoo.
	6:30 pm -	Outdoor Bar-B-Que.
Monday, June 9	9:30 am - 11:00 am	Papers.
	11:00 am - 12:00 pm	Dr. Harry Rounds will speak on circadian rhythms.
	12:00 pm - 1:00 pm	Lunch, provided by the Sedgwick County Zoo.
	1:00 pm - 2:00 pm	Joseph T. Collins, Vertebrate Zoologist, University of Kansas Natural History Museum, will speak on "Endangered Species of Amphibians and Reptiles in the United States".
	2:00 pm - 5:00 pm	Papers.
	7:00 pm -	Informal banquet and cocktail party.
Tuesday, June 10	10:00 am - 11:00 am	Ron Blakely, Director of the Sedgwick County Zoo, will review current legislation before the U.S. Congress concerning zoos.

The rest of Tuesday is open for AAZK discussion.
Lunch will be provided by the zoo.
Registration form is on page 9 of this newsletter.

* * * * *

A BIG THANKS to the following people for their contributions to "the cause". These people have shown their support of Keeper Professionalism by donating in excess of the normal AAZK dues.

Earl Brockelsby	Harry F. Born	Jerry Houghlan	Marvin Jones
Vernon Kisling, Jr.	Robert Guard	Roger Martens	Alfred J. Perry
Donald A. Rolla	David Stacy	Janet Clarke	Pat Wiard
Larry & Pat Sammarco	Alan Sharples	Ralph Small	Gay Kuester
Elizabeth Frank	Steve Taylor	W.G.S. Lyons	Alan R. Hamilton
Kent L. Benedict	Di Asch	Ed Ramsay	Jungle Larry's African Safari
Dan Baffa	Sharron Hembroff	A.F. Pierce	Lafayette Zoological Park

THE AMERICAN ASSOCIATION OF ZOO KEEPERS will begin publishing an annual journal this year. The journal, to be called THE KEEPER, will contain technical articles covering a wide range of subjects dealing with the management of wild animals in captivity. These papers will be written by animal keepers and published by AAZK as an educational service for all professional zoo keepers.

THE KEEPER will be compiled and edited by the AKF Editorial Staff in Topeka, Kansas.

The deadline for submitting articles for the first (1975) journal is Sept. 1, 1975.

THE KEEPER will be sent to all AAZK members as a membership benefit in November.

More information concerning THE KEEPER will be printed in future AKF's this summer. If you would like to contribute a paper, now is the time to begin writing. Please send all papers to: AKF Editors, 635 Gage Boulevard, Topeka, Kansas 66606.

INFORMATION WANTED on the care and breeding of Indian fat-tailed geckos (*Eublepharus macularis*). Write to: Judie Steenberg, 8415 Bacardi Av. W., Inver Grove Heights, MN 55075.

SIGNIFICANT BIRTHS at Lincoln Park Zoo were three Indian Lion cubs born on March 26. Lincoln Park Zoo is the only zoo in the western hemisphere ever to reproduce these severely endangered animals in captivity.

GUEST EDITORIALZOO KEEPING MADE EASY

Bob Truett, Director, Birmingham Zoo, Birmingham, Alabama

It is an honor to be asked to write for the Animal Keepers' Forum. I began my zoo career as an animal keeper and have always considered the keeper to be the most important man in the zoo. In all lines of work I admire quality. A worker who is worth his pay will constantly strive to develop the highest degree of competence possible and he will give to his employer a full eight hours daily of diligent effort together with a healthy dose of loyalty and esprit de corps. This is especially true of the good animal keeper.

Unfortunately, today there are too few people who take this kind of pride in their work. The majority of us seem to be striving for mediocrity. In the past I have on several occasions spoken or written about the excellent animal keeper--how he (or she) is trained, what are the qualifications, etc. So for the purposes of this article, let's assume that I have some readers who don't want to excel as animal keepers, who don't wish to be highly competent. Let us assume that you just want to be a run-of-the-mill, mediocre employee. The following suggestions will help you to attain the level of mediocrity which will be the envy of all persons who believe the world owes them a living.

1. Assume that animals are dumb brutes with no feelings. Feeding and taking care of them is like putting gas in a car. You just do it to keep them moving.
2. Consider the visitors who come to your zoo to be a necessary nuisance. You tolerate them when they behave well, but yell at them if they break the rules.
3. Try to stay out of sight of the public as much as possible so you won't be asked those same old tiresome questions. If someone asks you a question to which you don't know the answer, act as if you know and tell him something he will believe.
4. If your zoo gives classes for the keepers, attend them reluctantly, don't worry about learning the material presented, and be sure to gripe about having to "go back to school".
5. If your zoo makes available books about animals which you can check out and read you should avoid doing so. Your fellow employees might think you are reading about animals to impress the boss.
6. When you have an idea you think might improve the zoo, keep it to yourself. The boss doesn't appreciate good suggestions. If you ever do make a suggestion and the boss doesn't use it, you should assume that he is a dumb cluck and never offer another suggestion.
7. Never do anything which isn't required by your job description. For example, avoid picking up litter from the zoo grounds. That's someone else's job. You don't really care if it would make your zoo look better.
8. If one of your fellow keepers does work which is not required or seems to take a great interest in animals be sure to gossip about that keeper and accuse him or her of "brown nosing".
9. The great American sport is griping about the boss. Be sure to tell your friends, relatives and fellow employees that your boss is a scalawag and a dumb cluck. Talk endlessly about every mistake he makes but if he does something good forget it as soon as possible. This applies not only to the Director of your zoo but also to each curator, zoologist, board member, etc. Gripe about all your bosses as much as possible.
10. If you get caught in any kind of negligence never accept disciplinary action like a mature man or woman. Make a big case out of it. Tell everyone that the management

has it in for you. Keep a minor incident going for weeks or even months if possible. Stir up as much resentment as possible among your fellow employees.

The above rules are guaranteed to make you into a mediocre animal keeper. By encouraging all of your fellow keepers to follow these same rules you can keep all from excelling.

On the other hand, if you want to be that rare and valuable individual, a highly competent professional keeper then you should do just the opposite to the above rules. Of course this will make you rather unpopular among those employees who just want to get by. But you will have to decide for yourself if your job is to be a buddy to the drones. Or is it your job to provide the best possible care for those helpless living things that depend on you to give a full measure of loyalty to the general public that pays your wages. Only you can decide whether or not you want to be a professional at animal keeping.

* * * * *

LETTER TO THE EDITOR

Dear Editors,

I would like to comment on the timing of the upcoming 1975 AAZK Conference. I think the summer is a bad time to have the conference because the summer is the zoo's busiest time of year. I feel a better time to have it would be in early spring. I have been a member of AAZK since I first heard about it, and I attended the conference the first year I joined. I both enjoyed myself and learned a lot.

The first conference I attended was the 1973 conference in Boise, Idaho and I also went to the 1974 conference in Chicago. I had intended to attend every future conference until the day I die, even though I hope to be in zoo management some day. But, because of the timing of the upcoming conference I will not be able to attend.

I am a student and I work in zoos during the summer. This year I get out of school on May 22 and I plan to start work at Fort Wayne Zoo on May 24. Because of it being a summer job and just starting I could not possibly ask off for days in June. I would have been able to attend in early spring and I very much wanted to go.

I'm not only wanting to point this out because of my own needs, but for all animal keepers.. Most zoos have their busy season in the summer months and management doesn't let as many keepers take off during that time. If the conference was in early spring, more people would have the opportunity to go to the conferences. As I said, I have attended the last two conferences. The one in Boise which was in June had very low attendance. The one in Chicago was in April and the attendance was more than five times as high. I realize that one is a National and one is a Regional, but isn't that title somewhat of a farce since each region doesn't have a conference every two years, and the Regionals are just small Nationals. Titling them in this way might have an effect on attendance.

I would be interested in hearing other keepers' views on this. I would also like to mention that there were only so many time spots that they could have the conference, but I had hoped for a better time. It's too late for this year's conference but if others feel the way I do please inform AAZK, so maybe future conferences will be at a time when more keepers could go to them.

Thank you, and I hope this letter gets printed.

Jay E. Terkel
Springfield, Illinois

STUDBOOKS

James E. Fouts (Clouded Leopard Studbook Keeper), Sedgwick County Zoo, Wichita, Kansas.

At the request of the AKF editors, I would like to briefly explain the existence of Studbooks and the procedures involved in compiling and maintaining them.

First of all, for the benefit of those who are unfamiliar with the Studbook concept, it was created by the IUCN to aid in the proper captive management of an endangered species. In essence a Studbook is the registration of all "true" individuals of a particular species. By "true" I mean animals of pure ancestry and/or subspeciation. The primary function of the Studbook is the retention of an animal's individual identity thru registration in the Studbook. By retaining individual identity, harmful inbreeding can be prevented, thereby increasing the probability of quality offspring. This can only be accomplished if the Studbook is utilized by owners of the species concerned. If the Studbook is not fully utilized it might as well not exist. However, when properly enlisted the Studbook can be an invaluable tool in species preservation, as demonstrated by the survival of the European Wisent and the Przewalski's Horse.

Initially, to establish a Studbook the species in question must be reviewed by the IUCN to determine whether or not the species warrants a Studbook, and if so, their endorsement is granted thru the Editor of the International Zoo Yearbook.

Once permission has been granted, the next step is to thoroughly research the species. If at all possible, the original description of the species should be located and special attention given to its systematics and distribution. In the majority of cases this step can be readily satisfied, but with others there may exist an occasional taxonomic disagreement on the subspecific level, and as illustrated by the Clouded Leopard a rarely encountered discrepancy on the generic level. An answer must then be derived for the question of which classification to accept for use in the Studbook. Of course, the easy way out taxonomically would be to lean toward the "lumpers" and away from the "splitters" but ultimately to side with the "splitters" is to please the greatest number of people. This is where all those hours of research should be applied.

When the Studbook Keeper is at ease with the systematics and distribution of the species, a questionnaire is then distributed to institutions and individuals who own or have owned the species concerned. A starting year is also chosen to provide a base for data collection with all data being collected from that year forward. Knowledge of the species' first years of captive reproduction and longevity are necessities when considering a starting year. The information requested on the questionnaire relates to the animal's origin, ancestry, breeding history and records of progeny. Request for cooperation must be issued several times before some institutions will respond, and in some cases, they never respond at all.

When a sufficient number of questionnaires have been returned, compilation of the Studbook may begin. Many zoos have no idea as to where their animals originated, having only a dealer's name as a source. The Studbook Keeper must then validate those animals' individual origins by tracing each of their past histories if registration is to occur. If an animal's origin cannot be documented then its registration will not be allowed. In some cases tracing reveals impure stock of animals thought to be pure. This often leads to tense situations due to the fact that the registration of an animal usually doubles that animal's worth. Thus people usually are quite displeased to learn that their animals are not registrable.

Compiling the Studbook is synonymous with the assembling of an intricately complicated puzzle with some pieces missing and having others which seemingly do not fit at all. Many errors in ages, arrival and birth dates, and countries of origin are encountered mainly due to poor record keeping or a total lack of interest on the part

of many zoos. Hopefully ISIS can improve on the careless record keeping, but as for the lack of interest, I am at a loss for a logical solution. By not participating in the Studbook, zoos are not only preventing the registration of their animals, but also preventing the registration of other zoos' specimens by withholding precious pieces of information needed to complete the puzzle.

After all data has been summarized and compiled, the Studcards are then issued. All Studcards are modeled after the Przewalski's Horse Studcards with blue representing males and pink for females. Two cards exist for each individual, one of which accompanies the animal wherever it may go throughout its lifetime, and one which remains in the Studbook Keeper's file as his record. Upon that animal's death the Studcard which normally remains with the animal is returned with the required death data to be placed in the "Dead File".

After the Studcards have been issued, it is a never-ending task to maintain the Studbook efficiently. At the end of each year a questionnaire is distributed to owners requesting changes within the species in their collection during the past year. The Studbook Keeper is responsible for a yearly report to the IUCN which is summarized in the International Zoo Yearbook, and for the publication of the Studbook in a zoological newsletter or journal of his choice.

The formulation and maintenance of a Studbook is extremely demanding. I have found no greater consumer of my time. But, demanding as it may be, it is a truly rewarding responsibility knowing you are contributing positively to the survival of an endangered species.

* * * * *

ANIMAL KEEPERS' FORUM FINANCIAL STATEMENT 1ST QUARTER 1975

	Year-end 1974 balance	\$305.29
<u>INCOME</u>		
Subscriptions	81 @ \$5.00 each	\$405.00
AAZK members	30 @ \$5.00 each	<u>150.00</u>
	Total Income	\$555.00
		<u>\$555.00</u>
<u>EXPENSES</u>		
Printing, Supplies & Machine use:		
	Machine use 4 months @ \$3.00/mo.	\$ 12.00
	Typewriter ribbon & corrector film	5.33
	Gestetner supplies: Ink, duplisorbs,	
	correction fluids	53.25
	30 reams paper	91.45
	500 envelopes	14.13
	Logo reduction	<u>2.34</u>
		\$178.50
	Postage: Miscellaneous stamps (1st class)	\$ 25.92
	Bulk rate permit	15.00
	" " annual use charge	30.00
	" " Jan - Mar actual charge	33.13
	" " April deposit	<u>30.00</u>
		\$134.05
	Miscellaneous supplies	
	file cards, box & letter file	<u>\$ 6.74</u>
	Total Expenses	\$319.29
		<u>\$319.29</u>
	Cash on hand March 31, 1975	\$541.00

RAISING AFRICAN PENGUIN CHICKS

Janet Gailey, Baltimore Zoo

African penguins (*Spheniscus demersus*) have been exhibited at the Baltimore Zoo since 1967, when a group of wild-caught, mated adults were obtained from South Africa. Successful breeding began in 1969. The birds are kept in a large open exhibit, consisting of a rock island with a large moat. Nesting takes place in the many crevices among the rocks and in the doghouse style nest boxes, inside.

At this time, we have five young, four of which are second generation. Three pairs of adults are on eggs. The young usually are removed from the parents at one month of age. They are placed in a nursery area on a deep layer of kitty litter, with a small shelter for hiding. They are fed small whole smelt, with the vitamin supplement "Sea Tabs" and salt. Within two to three days, the chicks have learned to swallow the fish and soon are running to the front of the nursery at feeding time. They are fed three times a day. After the juveniles are feathered, they are released to the colony. At this time, they are hand feeding as well as the adults. Within one to two weeks, they learn from the others to take fish tossed into the water.

By removing the chicks we solve two problems that arise in captivity with penguins. First, as the chicks fledge in the wild, the adults go to sea. After two to three weeks, they return to begin the second clutch. This period at sea severs the parent-chick bond. In captivity there is no opportunity for adult penguins to return to the sea. Second, after abandonment by the adults, the chicks wander to sea, fall in and instinct leads them to satisfy their hunger. For a young penguin in captivity, there is nothing to tell it that a dead fish is food.

With the removal of the chicks at one month of age, they are young enough to adjust easily to people and the captive diet and are old enough to ensure survival. When returned to the colony, they feed well on dead fish and do not "know" their parents, nor do their parents "know" them. Any keeper who has been involved in teaching adult penguins-especially *Spheniscids*-to eat a captive diet can see the value of teaching the birds to eat at a young age.

The problem of teaching young penguins to take dead fish is apparently wide-spread in zoos. With the method used at the Baltimore Zoo, they not only hand feed regularly, but soon are taking fish in the pool with no problems.

PROFESSIONAL ZOO MANAGEMENT AND LEADERSHIP TECHNIQUES

June 20 - 23, 1975

Holding a supervisory position in a zoo as a head keeper, curator, assistant director or director requires more than expertise in animal management - a knowledge of people and how to get them to do what needs to be done is essential to the smooth and efficient operation of your zoo. Technical and practical management procedures include: (1) Staff Communications, (2) Establishing and Implementing Priorities, (3) Performance Standards and Records, (4) Leadership and (5) Public Relations and Media Communications.

Program will be presented by: Dr. Joel D. Wallach, Director, Overton Park Zoo and Aquarium, Memphis, Tennessee; Mr. Wayne Carlisle, General Curator, Overton Park Zoo and Aquarium; Mr. Cliff Ross, Curator of Mammals, Overton Park Zoo and Aquarium.

The Professional Zoo Management and Leadership Short Course will be held at a wooded retreat in Mississippi and will be limited to 10 participants. Registration fee of \$150 includes transportation to the retreat from Memphis, rooms, meals and the course proceedings.

REGISTRATION MUST BE MADE BY JUNE 1, 1975

For further information and registration write to: METAMORPHOSIS ASSOCIATES/ Ark Memorial Veterinary Clinic/ 1165-B Buckey/ Cordova, Tennessee 38018/
Telephone: (901) 754-5275

ANIMAL NUTRITION Questions & Answers

Dr. Richard S. Patton, Topeka, Kansas

Q. What are the potential hazards of excess protein in the diet of infant marsupials?

A. Not necessarily any more than excess protein for any other newborn. For any newborn the safest approach is to duplicate its mother's milk protein (and fat) in both quantity and quality. Excess protein must be excreted which is an unnecessary metabolic expense. An appreciation for the dynamics of protein metabolism can be gained from recognition of the fact that an animal deprived of food and water will die sooner if given only a high protein concentrate food and no water. This is because the breakdown products of protein can be harmful and water is required to flush them from the system.

Q. Is mineral salt block better for hoofed animals than white block salt?

A. A most definite, unqualified, absolute, affirmative yep! The trace mineral salt block is a very simple way to virtually assure one's self of adequate trace mineral intake in hoofed stock.

Q. Do captive ruminants necessarily need grain in their diet?

A. Not necessarily. It is possible to feed a ruminant a good quality legume hay and/or pasture, along with trace minerals and they will maintain adequately. This is provided they are under no additional stress such as growth, reproduction, severe weather (a wet 40° wind can be a far greater stress than a still clear day at 0°F) or sickness. Thousands of ruminants live their entire lives without grain. But why should you run bald tires on your Rolls Royce? Provide a concentrate mix to the sables regularly - it's very cheap insurance.

Q. Can too high a protein level in a diet cause overgrown hooves in hoofed animals?

A. Far more important than dietary protein level is the amount of wear and abrasion to which the foot is subjected. Integument tissues (hair, nails, horns & hooves) need a certain level of sulfur containing amino acids. Their lack can affect the integrity of these tissues sooner than an over abundance. An over abundance of protein tends to be shed in the urine, not shunted to the hooves. Most herbivores (adults) need from 8 to 10% plant protein in their diet for maintenance. To feed below this level to control hoof growth is risky. It is far better to place a metal grate or gravel around the feeding area.

Questions for the Nutrition Column should be sent to: AKF Editorial Staff,
635 Gage Boulevard, Topeka, Kansas 66606.

* * * * *

ADVICE NEEDED

Anne Davidson, Chief of Veterinary Nursing, Franklin Park Zoo
Hospital, Dorchester, Massachusetts

We need advice from other well-stocked nurseries. What type of nursing nipples do you use for your "in-between" sized babies? We use lamb nipples for most hoofed stock, Nip Pet Nurseries or eyedroppers for small infants, and Evenflo for our larger carnivores. Our middle-sized nipples, the red premies by Davol, for small cats, coati mundis, kinkajous, etc., are no longer being made unless we can buy 28,000.

Any ideas or suggestions?

Sketch of nipple shape:

Brand name or Co. _____

Co. Address _____

Please return to: Nursery Staff, Franklin Park Zoo Hospital, Dorchester, MA 02121.

SYMPOSIUM ON THE BEHAVIOR AND ECOLOGY OF WOLVES

Annual Animal Behavior Society Conference, Wilmington, N.C., 23 May, 1975. Reports on wolves in the wild and in captivity in the U.S., Canada and Europe will be presented by leading wolf researchers. A series of WORKSHOPS will be held: (1) Behavior Mechanisms in Wolves; (2) Transplants and Reintroduction of Wolves in the Wild; (3) Wolf Data Bank; (4) Wolves in Captivity; (5) Public Relations and Public Education; (6) Legislation and Enforcement; (7) The Red Wolf. The evening program will include an illustrated report by Dr. L. David Mech, wolf researcher from Minnesota.

For information on preregistration and housing write to Dr. Erich Klinghammer, North American Wildlife Park Foundation, Battle Ground, Indiana 47920.

AAZK MIDWEST REGIONAL CONFERENCE REGISTRATION FORM

Name _____ Address _____
 Zoo/Aquarium _____ City _____ State _____ Zip _____

Do you plan to give a paper? _____. (If so, list title, length and any equipment needed.)

Do you plan to use camping facilities? _____. How many days? _____.

Do you plan to stay in a motel? _____. How many days? _____. How many people? _____.
 Single _____ or Double _____. Do you want us to make reservations for you? _____. You
 have a choice of four motels with different rates; please specify which. (for
 singles) \$10.18 _____, \$11.33 _____, \$18.00 _____, or \$19.00 _____.

If you would like to be picked up at the airport or train station please give us
 your time of arrival, flight number, etc. _____.

The Zoo's address and telephone number are as follows: Sedgwick County Zoo, 5555
 Zoo Boulevard, Wichita, Kansas 67212. Tel. (316) 942-2212. After 5:00 pm, please
 call (316) 264-6098.

AAZK/AKF MEMBERSHIP/SUBSCRIPTION FORM

☐ AAZK Membership -- \$10.00 per year. Includes subscription to AKF. Make check or
 money order payable to: American Association of Zoo Keepers.

☐ Subscription rate for Animal Keepers' Forum is \$5.00 per year (Jan. thru Dec.).
 make check or money order payable to Animal Keepers' Forum.

Name _____ Send to: AAZK Hq. (or)
 Animal Keepers' Forum
 Address _____ 8415 Bacardi Av. W.
 City _____ State _____ Inver Grove Heights,
 Minnesota 55075
 Zip Code _____

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VOLUME II, NUMBER 6

JUNE 1975

NATIONAL ZOO NEWS

Bela J. Demeter, National Zoo, Washington D.C.

The National Zoo recently sent a delegation to the AAZPA N.E. Regional Workshop which was held at the Turtle Back Zoo in West Orange, N.J. May 5, 6 & 7. Attending were keepers Pamela Davis (Birds), Bob Douglas, Mike Deal (Health Unit), and Bela Demeter (Reptiles); and Bill Xanten (Curator Mammals) and Moses Benson (Chief Steward, Commissary). The conference was very productive and extremely interesting for the keepers. For most of the group this was their first convention. Pam presented a paper on the National Zoo's successful breeding of Kiwis and Bela gave his paper on the care and breeding of Giant Day Geckos.

The National Zoo recognizes the importance of keeper education and involvement and has a policy of sending keepers to conventions of this sort. Two keepers are also slated to go to the AAZK Regional Conference in Wichita. Hopefully, other zoos will take note and consider sending more of their keepers to these meetings in the future.

LEOPARD AND CLOUDED LEOPARD SURVEY ORDERED

The leopard (*Panthera pardus*) and clouded leopard (*Neofelis nebulosa*) are to be the subjects of two separate surveys by the U.S. Fish and Wildlife Service. The surveys are designed to determine if the animals should be listed as endangered or threatened species. The leopard is currently regarded as endangered. The survey would help determine if the leopard should be reclassified as a threatened species. The clouded leopard is not classified as either endangered or threatened. (USDI)

BUFFALO ZOOLOGICAL GARDENS - 1875-1975 Felicity Crawford, Development & Public Relations

The Buffalo Zoological Gardens celebrates its one hundredth year with a week of festivities for the whole community, June 15th through 21st.

The first one hundred years have not been easy for the Buffalo Zoo, but using new techniques, new materials, new knowledge and an increased awareness of animals and their needs, coupled with the support of the people of Buffalo and Erie County, the Buffalo Zoological Gardens can look forward to a bright future.



"Animal Keepers' Forum" is a non-profit monthly publication distributed to professional zoo keepers independently, and by the American Association of Zoo Keepers as a service to its members. "Animal Keepers' Forum" includes news and official announcements of the American Association of Zoo Keepers, formerly published in "The Keeper".



AMERICAN ASSOCIATION OF ZOO KEEPERS

8415 BACARDI AVENUE WEST
INVER GROVE HEIGHTS, MINNESOTA 55075

AAZK CHAPTER AT MILWAUKEE COUNTY ZOO

Bob Hoffman, Milwaukee County Zoo

The keepers of Milwaukee County Zoo are proud to represent AAZK in our newly formed chapter. As of May 20, 1975, we have 48 members (35 keepers and 13 non-keepers). Our officers are Bob Hoffmann, Pres.; Sam LaMalfa, Vice Pres.; Jacky Williams, Secr.; and Dick Miller, Treas. Our chapter will make every effort to perpetuate the goals of AAZK on a local and national level. We welcome any communication and advice from established chapters or individual members that will aid our growth and promote AAZK's ideals. Our address is AAZK, Milwaukee County Zoo, 10001 W. Bluemound Rd., Milwaukee, Wisconsin 53226.

AAZK PATCHES AVAILABLE

After some time without one of our signal benefits, AAZK once again has shoulder patches available to its members. An initial issue of one patch will be sent to all current members of record and new members will automatically receive one. Additional patches will be available from AAZK at \$1.00 per patch. The reason for the initial issue to all members is that we have no record of who may or may not have received theirs at the time of their joining AAZK.

AAZK ELECTIONS

We're reprinting, on pages 3 & 4, the form on which nominations for candidates for the Board of Directors election coming up this summer. Please read the form carefully and fill it out completely if you intend nominating someone. Hopefully, we can make it difficult for Bela Demeter and the Elections Committee!

AN EDITORIAL (OF SORTS) FROM "HEADQUARTERS"

Since being appointed Executive Secretary/Treasurer some six months ago, or so, I have taken note of a number of changes that might effectively make for a more efficient, effective organization. I'd like to see the treasury separated - that is, someone other than the Executive Secretary. Also, I think we might appropriately institute a reference committee to research the requests for animal info. Too, a "Coordinator for Chapter Affairs" has been suggested. Also, annual National Conferences. I think a lot of these ideas warrant serious consideration--not just by me or the Board of Directors, but by the membership as a whole. I intend, therefore, to solicit your notions on the possibility of a National Conference to be held, perhaps, this fall. Unless, of course, I get no feedback from this "editorial". You know our address.

A BIG THANKS to these additional contributors. These people have shown their support of Keeper Professionalism by donating in excess of the normal AAZK dues.

Linda Weiss

Kathy & Howard LeClere

NOMINATION FORM
AAZK BOARD OF DIRECTORS
ELECTION 1975

Nominee _____ Institution _____
Address _____ Phone _____
City _____ State _____ Zip _____

Please explain briefly why you feel the nominee warrants election to the Board of Directors. Include a brief statement of his or her background and experience:

Signature of Nominee

Acceptance: I agree to accept the nomination for election to the Board of Directors and can meet the requirements for a position on the Board of Directors.

Signature of Nominee

PLEASE FORWARD, BEFORE JUNE 30, 1975, COMPLETED FORM TO AAZK ELECTION COMMITTEE, NATIONAL ZOOLOGICAL PARK, WASHINGTON, DC 20009. PLEASE BE SURE FORM IS PROPERLY COMPLETED AND SIGNED BY THE NOMINATOR AND THE NOMINEE.

GUIDELINES FOR NOMINATIONS:

1. Nominee must be an AAZK member in good standing (current dues paid).
2. Must be a full time keeper or attendant in a zoo or aquarium in U.S. or Canada.
3. Nominee must agree to uphold the constitution of AAZK, and must agree in writing that he/she adheres to AAZK policy that the Association is not a labor organization, and must not be utilized as such.
4. Nominee must agree to travel to Board meetings (usually in conjunction with a national or regional conference) at his or her own expense.
5. Must agree to devote time to correspondence pertinent to all Board business.
6. Must be willing to answer correspondence promptly and efficiently.
7. Must be willing to accept committee assignments.

The Election Committee, comprised of five members of AAZK, will choose three or more nominees, who will oppose incumbent members of the present Board of Directors who agree to run for re-election.

Each candidate will serve a four-year term upon election.

Elections will be by written ballot, mailed to the Election Committee. Ballots, including resumes of each candidate will be mailed to all eligible voting members, at least 30 days prior to election deadline.

Nomination forms NOT properly completed or not meeting minimum qualifications will be VOIDED.

Election ballots marked incorrectly or with names other than the nominees, will be VOIDED.

PLEASE NOTE ADDRESS WHERE NOMINATION FORMS ARE TO BE MAILED. ALSO, PLEASE NOTE DEADLINE DATE FOR NOMINATIONS.

Election instructions will appear in the Animal Keepers' Forum. Please follow all instructions to insure validity of your vote.

* * * * *

"JOB DESCRIPTION FOR MEMBERS OF THE BOARD OF DIRECTORS"

Article III of the By-Laws of the AAZK:

Duties of the Board of Directors

Section 1. To confirm appointments made by the President.

Section 2. To control and manage the Association and its property, passing upon acquisitions and disbursements with approval of a simple majority of the Board.

Section 3. To formulate policies, rules and regulations in accord with the Constitution and these By-Laws.

* * * * *

GUEST EDITORIAL

KEEPERS' IMAGE Clayton F. Freiheit, Director, Denver Zoological Gardens

At the Denver Zoo we have tried to impress our Career Service Authority that animal care is a skilled trade which, even through at times somewhat menial, deserves adequate compensation. Our qualifications are basic and not really remarkable: graduation from high school and some experience working with domestic livestock. We are finding, however, that we are seeing mainly college-trained applicants. There has been an intense interest in working with wildlife as a spin-off of the environmental movement and, as a result, many college graduates are turning to zoological parks for employment. The bulk of the keepers hired here over the past several years have either B.A. or B.S. or even M.A. degrees, but this is not due to our qualifications!

In my view, the keeper's sense of accomplishment revolves around his personal observation that his animals are doing well under his care. This really is what animal keeping is all about. Since the keeper is basically responsible for animal care, any successful breeding and rearing as well as a longevity record is largely due to the skill of the keeper. He may feel peripheral accomplishment such as zoo visitors enjoying his exhibit, or remarking how well his animals look, or how well his facilities are kept. All should add to the keeper's sense of accomplishment.

There are several ways in which a keeper can improve his image to both his supervision and the public. Supervision should be impressed by the person who performs his job well and requires little direction. Other factors which impress supervisors are those keepers who accomplish the little extras, do not abuse sick leave privileges, and are dependable for regular attendance. Personal appearance is also an important factor for both supervision as well as the public. The public reacts favorably to a keeper who is neat and pleasant and who answers their questions courteously. As a Zoo Director, I personally admire the keeper who asks questions and is willing to give input into the betterment of the zoo. Suggestions offered by our keeper force are seriously considered and, if practical, they are implemented. Keepers are regularly involved in design sessions for new facilities and frequently come up with excellent ideas.

I am very proud of our Denver Zoo keepers and think they are among the best in the nation. This is not just institutional pride or loyalty! We have been fortunate to attract and hold excellent people of extraordinarily high caliber. This is reflected in the appearance of our zoo and our record of success with the animal collection. We couldn't have done it without the fine keeping force we are privileged to work with.

OBSERVATIONS ON CARE, BREEDING, AND BEHAVIOR OF THE GIANT DAY GECKO (PheIsuma
Bela J. Demeter, Keeper, Reptiles and Amphibians, National madagascariensis)
Zoological Park, Washington, D.C. (Abstract of paper to be published in International
Zoo Yearbook, Vol. 16)

The National Zoological Park has succeeded in raising six Giant Day Geckos to maturity from an original colony of four adults. Sexual maturity is estimated to be at approximately twenty months. These animals breed readily but the production of the calcareous eggs presents a problem in that it depletes the female's mineral salts reserves resulting in a softening of the bony skeleton. Unless these minerals are replaced, continued egg production will lead to death.

In addition to their regular diet of crickets, the geckos at the National Zoo are fed each week a mixture of egg yolk, honey, molasses, brewer's yeast, multi-vitamins, Vit. D3, and calcium lactate. It is thought that this supplementary feeding combined with proper management will result in even more successful breeding of these animals. It is still too early to evaluate the success of this nutritional program, but some of the eggs laid by second generation individuals appear to be well-formed and properly calcified.

WHAT IS A ZOO? WHERE ARE ZOOS GOING? David Simon, San Francisco, CA

I have been working the last four years as an animal keeper at the San Francisco Zoo. During this time it has become increasingly obvious that two opposing interest groups are emerging and solidifying in zoos.

There are those who believe zoos and anything resembling zoos are bad for animals. They devote tremendous emotional energy to abolishing zoos. They believe that our natural wilderness areas are the only possible solution to the problem of saving various animal species from extinction. I have absolutely no quarrel with the vigorous preservation of our existing wilderness areas. In fact, I believe any animal keeper you would care to talk with would want strict preservation and growth of natural wilderness areas. However, the complete negation of zoos and the changing attitude of the personnel working in zoos is a foolish and unrealistic attitude.

Then there are the "zoo people" who, out of scared reaction to the claim that zoos are bad, call those that want zoos abolished "radicals" and "maniacs". Out of this reaction has grown several counter, and equally emotional arguments: Some animals now, or soon will exist only in zoos. Zoos offer the public their only chance to see wild animals. Zoos, especially in the future will be genetic banks for breeding and restocking of wilderness areas. Etc.

Now, both of these factions and all of the arguments presented possess some truth. But, neither of the opposing factions are really looking at what a zoo is!

The zoo is a process. The most important aspect of the zoo for me as an animal keeper is the phenomena of how the zoo acts upon the successive generations of animals bred in zoos and then changes them. So, we may see the zoo as a process that changes the animals from a particular state of existence which we call the "wild state", to what we call the "captive state". It is around these two opposing states of existence that the animal people at the zoo have rallied. One camp firmly entrenched in the "wild state" and the other well fortified with logical arguments behind the "captive state". I don't want to place any value judgements on these two different states. I just want you to agree with me that they exist and that the process of change occurs in zoos. Zoos then, act as a kind of evolutionary and environmental "pressure cooker". The zoo, in relatively few generations changes an animal's survival capacity from the wild to the captive condition. If the individual animal doesn't adapt to the new stress situation of zoo living then it dies, or at the very least refuses to reproduce. Just as in the wild it dies or never breeds.

There are some groups who look upon this adaptation to zoo life as totally negative. It is true that it seems to have a negative aspect right now, but only because we don't see a way out yet. Zoos exist, civilization exists, and if things keep going the way they are, energy crises and all, we may very well have less land area available for true wilderness, not more.

I say that if we look to the future and find that we really want the preservation of animal life, we will have to use land that is not wilderness. Most of the animals will have to accept supplementary food and breed under the stress of some human contact. What better place to select breeding stock from than those animals which have proven themselves good breeders under zoo conditions.

(continued)

Man may still be able to fulfill his yearning to experience and observe animals in what would seem to be a natural environment. We would not have to make the trek to bonafide wilderness areas which are very delicate and couldn't take too much human use anyway. We have to start thinking about making full use of land that is in a grey zone between wilderness and full human habitation. Some countries already are trying the concept of multi-use of recreational land and open spaces.

I think that if we take a good look at what a zoo actually is, instead of wishing for a return of man and beast to the mythical natural state, we can intelligently deal not only with the question; "What is a Zoo?", but also with the question, "Where are Zoos going?"

* * * * *

ZOOS SHOULD BE FUN Vincent Hall, Hawley, PA

It is obvious that zoos need public support, now more than ever.

I believe that one way to help get that support is to try to have the public enjoy themselves while visiting your zoo.

Of course it is important to use zoos to propagate endangered species and study animal behavior, but those facets of zoo activity will not satisfy the public's interest on a Sunday afternoon. I am sure that the Giant Pandas would not be such a great attraction if they just slept in a corner all day.

The public wants to participate in zoo functions. However, there is very little that they can normally and safely do. A major attraction at our zoo and many more across the country is the Petting Zoo or Contact Area. In these areas the visitors can pet and feed tame deer, llama, sheep, etc. This participation arouses much more interest than simply looking at a nocturnal animal curled up in a corner, or worse, an animal that is in a den and not visible at all.

Another way to entertain the public and at the same time educate them is with trained animals. This came about quite accidently at our zoo this summer. I used to go in and play with our Himalayan bear cub every day. I would give her a marshmallow as I handled her. Gradually, she would stand up on command to get a treat. Slowly, without consciously trying, I had her performing simple stunts which included catching a ball and giving me a kiss. Whenever there was a crowd near the bear's cage I would put on my act. It would never compete with a circus but it amused the visitors and led to questions about the age of the bear, what she ate, etc. It stimulated the visitors to get more involved than if they saw a bear walking aimlessly back and forth in her cage. The result was an entertained and hopefully better informed public and most important, a less bored animal. This technique has been perfected in one zoo where the chimps have been taught to feed fish to the porpoises! I am not suggesting that lions be taught to jump through flaming hoops but some animals are natural hams, like bears, raccoons, and monkeys, and can easily be taught simple stunts. Even a raccoon that comes over to its keeper for a treat is performing a simple but entertaining trick for the people who will ultimately keep our zoos in existence.

I believe that if the public enjoys themselves at our zoos they will be more interested in them. That interest will lead to the support we all so desperately require.

ANIMAL SHOWS Randy McGill, Oak Park, Michigan

Animal shows are entertaining, amusing, and money-making endeavors. Their appeal is to "children of all ages". The sight of an animal, wild or domestic, performing with human qualities is a delight to almost everyone. However, it would seem that the concept of these shows and the concept of a zoo are opposed. Animal shows are staged for money. The circus is a good example of this. Sure, zoos need money too, but is this the way to go about getting it?

A zoo is a place for people to visit to see animals they probably could never see if it were not for zoos. It's a place for education and scientific research. Most important, it is a sanctuary where certain species make their last stand for survival. The idea of allowing people to view certain animals in a carnival setting does not fit into any of these three purposes of a zoo.

People no longer need to see animal shows at the zoo. There is hardly a week that goes by without some sort of animal stunt show on television. Is it not the same as being there? Also the circus passes through every section of the country at least twice a year, not to mention the animal shows that are presented at fairs or bazaars. Therefore, I feel that it is time for zoos to stop participating in the carnival business and channel that energy into making the zoo a more enlightening experience for its visitors. I hope that other animal personnel present their views on this subject in coming issues of the "Forum".

THE SOCIETY FOR THE STUDY OF AMPHIBIANS AND REPTILES

The SSAR is concerned about the need for greater cooperation between zoo herpetologists and the professional herpetological societies. To accomplish that end, the SSAR has established a Liaison Committee to receive input from zoo professionals and regional herpetological societies and to provide services which have been neglected in the past. Membership in the SSAR offers the following advantages: a subscription to the quarterly journal entitled Journal of Herpetology and the bi-monthly journal Herpetological Review, occasional facsimile reprints of rare out-of-print herpetological publications, an invitation to the annual co-sponsored SSAR-Herpetologist's League Convention and the opportunity to purchase the Catalogue of American Amphibians and Reptiles and Herpetological Circulars, a series designed to give basic information to the beginning herpetologist. Herpetological Review is unique insofar as a section is devoted to Herpetological Husbandry, which encompasses captive maintenance, pathology and disease treatments, reproductive biology and other elements. Manuscripts for this section are solicited from zoo herpetologists.

Any suggestions as to how this cooperation might be accomplished and suitable manuscripts dealing with captive maintenance should be forwarded to: James B. Murphy; Editor, Herpetological Husbandry; Chairperson, Liaison Committee; Department of Herpetology; 621 E. Clarendon Drive; Dallas Zoo; Dallas, Texas 75203.

Requests for membership should be directed to: Henri C. Seibert, Publications Secretary, Treasurer; Department of Zoology; Ohio University; Athens, Ohio 45701.

Regular dues are \$8.00 in the United States and Canada, \$6.00 in other countries; Sustaining \$10.00, Contributing \$15.00. Subscriptions for institutions are \$16.00.

LEGISLATION

The FEDERAL ZOOLOGICAL CONTROL BOARD is an agency proposed in new legislation entitled H.R. 6631. The bill was introduced into the House of Representatives on 1 May 1975 by Rep. John Dingell, Democrat from Michigan. Dingell has authored the bill "in order to insure that zoos and other animal display facilities maintain minimum standards for the humane care and husbandry of animals, to provide technical and financial assistance to zoos and for other purposes".

H.R. 6631 is an extension of the famous "Dingell Bill", introduced into the 1974 session of the House. It failed to be acted upon and was reintroduced into the 1975 session as H.R. 70. To date, H.R. 70 has received no attention.

H.R. 6631 is intended to coordinate with established Acts (Marine Mammal Protection of 1972, Endangered Species Act of 1973 and the Lacey Act). Should H.R. 70 and H.R. 6631 be enacted, a tight mesh of federal control will be thrown over zoos.

One section of H.R. 6631 remains somewhat confused, yet is very important for all animal keepers. Section 221 calls for the licensing of zoological curators, zoological dealers, zoological hobbyists and zoological technicians. Briefly, here are the details:

Individuals performing functions as a zoological curator, dealer, hobbyist or technician on the date the bill is enacted must obtain an appropriate license before the end of the one year period after licensing standards are first prescribed. Individuals not performing as a zoological technician on the enactment date cannot apply for licensing as a zoological technician unless a certified zoological curator or technician (previously licensed) certifies to the Control Board that the individual has undergone not less than 120 days of supervised on-the-job training.

The license will be issued to specifications of the classes of animals the licensee is competent to care for. Rather, an applicant would desire licensing as a marine mammal technician, reptile technician or any of a number of different classes of technician. An individual granted a permit will pay a fee for each year the license is in effect...not to exceed \$100.00. The bill provides for revocation of the license and also allows criminal penalties for certain acts pertaining to the license. The bill does provide for grants to institutions for training its personnel.

H.R. 6631 is far too complex to detail her. All keepers are urged to obtain this bill, along with H.R. 70 from the Document Room, U.S. Congress, Washington, D.C. 20515.

* * * * *

AMERICAN ASSOCIATION OF ZOO VETERINARIANS CONFERENCE

AAZV 1975 Annual Meeting will be held in San Diego, California, on November 2-6, 1975. There will be four days of technical papers, visits to local wildlife facilities and social functions. Address all program communications to Dr. William H. Kirksey, 6715 Grapevine Highway, Fort Worth, Texas 76118.

ANIMAL NUTRITION Questions and Answers

Dr. Richard S. Patton, Topeka, KS

Q. What is the rate of depreciation of nutrients in diced fruit and vegetables?

A. This depends to a large extent on the location of the feed plate. In a 24-hour period the only appreciable nutrient loss will be water and this will be greatly influenced by temperature, air movement and direct sunlight. After two days of sitting at room temperature, chopped fruit and vegetables might show some fermentation of carbohydrates; perhaps some rancidity of lipid (fat) material, or even a little degradation of protein, but this would be due largely to microbial action and would be more a flavor change and odor problem, than a de facto lessening of nutrients.

Q. What is your opinion on lettuce (leafy vegetables) for hoofstock?

A. The table below compares lettuce, carrots, apples and cow's milk. This information is taken directly from Agricultural Handbook Number 8, Composition of Foods, available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (about \$3.00).

	Calories Cost		% Composition (as fed basis)						Mg./100gm.	
	per 100 gm.	per lb. (store)	Moist.	D.M.	Prot.	Fat	Carbo.	Fiber	Ca	P
Carrots	42	15¢	88.2	11.8	1.1	.2	8.7	1.0	37	36
Apples	58	35¢	84.4	15.6	.2	.6	13.5	1.0	7	10
Milk	65	17¢	87.4	12.6	3.5	3.5	4.9	0	118	93
Lettuce	14	25¢	95.0	4.0	1.2	.2	2.0	.5	35	26

As can be seen, there is nutritional value in lettuce (just as a Confederate Dollar Bill has buying power today), but from the standpoint of "food buys", it's not too difficult to beat. Milk costs much less, has three times the dry matter, three times the protein (which is of much greater biological value), 17 times more fat, over twice the carbohydrates and, of course, better calcium and phosphorus levels.

Leafy vegetables would probably enjoy wide acceptance as a feedstuff for ruminants due to their succulent nature and lettuce would do no harm in and of itself. However, as pointed out, it is mostly water and provides little in the way of nutrients even for a functioning ruminant (such as mule deer).

Q. Are there any problems in feeding gelatin-based diets assuming correct nutrients are included?

A. On a dry basis, gelatin is 85% protein. When reconstituted with water, it drops to about 8% protein. This protein is not as high in biological value as is generally believed. Be sure, when assuming correct nutrients, that you don't assume too great a contribution from the gelatin. Recall, also, that excess low quality protein is expensive to catabolize for animals with kidney problems.

* * * * *

Send questions for Dr. Patton's nutrition column to the AKF Editorial Staff/ Topeka Zoological Park/ 635 Gage Blvd./ Topeka, KS/ 66606.

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CONSERVATION NEWS

WORLD WILDLIFE FUND APPROVES HALF MILLION DOLLARS FOR CONSERVATION FOR APRIL

Grants totaling \$496,102 for conservation projects were approved by the U.S. Appeal of the World Wildlife Fund at its April Board meeting. The grants include: \$20,000 - Factors Affecting Declining Bat Populations in the Southwest; \$15,000 - Environmental Pollutants in Marine Mammals; \$50,000 - Status of Wild Primates of the World; \$2,000 - National Whale Symposium; \$4,000 - Crocodile Breeding Facility in Madras, India, for gavial, mugger, and estuarine crocodiles; \$3,000 Gorilla Conservation Survey, Cameroun; \$8,000 - Ecology of the Oilbird, Venezuela; \$24,750 - International Council for Bird Preservation. (WWF)

FIRST WHOOPING CRANE EGG LAID FROM CAPTIVE BREEDING FLOCK

The laying of a whooping crane egg in a breeding enclosure at the Patuxent Wildlife Research Center near Laurel, Maryland, on April 18, is being hailed as an event of major scientific importance. It is the first egg laid by the Patuxent flock. Wild Whooping cranes captured as adults had previously laid eggs in captivity - but this is the first time that a bird hatched and reared in captivity has, in turn, laid an egg. (USDI)

Just in time for printing, word has reached us that this egg has hatched successfully!

SEA TURTLES TO BE ADDED TO THREATENED LIST USDI

Three more species of sea turtles, that ancient family of reptiles which lived in the day of dinosaurs, have been pushed closer to extinction because of increased development of coastal shorelines and overuse for commercial purposes.

The green (*Chelonia mydas*), loggerhead (*Caretta caretta*), and Pacific ridley (*Lepidochelys olivacea*) sea turtles have been proposed in the Federal Register to be added to the U.S. List of Threatened Wildlife by the U.S. Fish and Wildlife Service, Department of the Interior, and the National Marine Fisheries Service, a unit of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce. The proposal came after a joint status review by both agencies found seriously decreased populations of these species throughout the world. The leatherback, hawksbill, and Atlantic ridley sea turtles are already on the U.S. List of Endangered Wildlife.

PROTESTORS DEMAND N.Y. SHUT ITS ZOOS---YOUR ZOO MAY BE NEXT

What can you do? You can help through one or more of the following ways:

1. Join ZOOACT. Invest as much as you can in our program to protect the future of your zoo. For a minimum investment of \$25 you will become an associate member and receive our ZooAction newsletter.
2. Tell other interested citizens in your community of the growing threat to our zoos and invite them to join you in ZOOACT.
3. Inform your elected political representatives, news media and other community opinion makers of the growing threats to your zoo. Solicit their continuing active support.

Inquiries should be directed to: George Steele/ Executive Director/ Zoological Action Committee, Inc./ 1225 19th St. N.W./ Suite 700 Washington, D.C. 20036.

A KEEPER EXCHANGE PROPOSAL James J. Perry, Buffalo Zoological Garden's AAZK Chapter, Buffalo, New York

Animal keepers rarely have the opportunity to visit other zoos and their visits are generally while on vacation or while attending conferences. Visits like this only involve the public's view of another zoo's husbandry methods or if they are behind the scenes, are brief, prepared and passive. Due to the nature of the animal keeper's job, he or she would best benefit from a working visit to another zoo. A working visit should be one where the keeper actually partakes in the daily routine of animal care and observes the differences, and similarities, in methods, diets and diet preparation, housing conditions and routines.

An exchange of keepers between zoos would give keepers the opportunity for just such exposure. The Buffalo Zoological Garden's AAZK Chapter believes a keeper exchange program has great potential value and would like to exchange ideas, suggestions and offers on keeper exchanges with other AAZK chapters or zoos within a reasonable distance. Our current thinking is that a keeper would receive a leave, with pay, for the exchange period (at least two weeks), and the host zoo would provide the guest keeper with a place to stay so that the only expense involved would be travel and a share of the board.

To illustrate that a keeper exchange program could be more than an exchange between zoos just across the state line, we have had correspondence from the Association of British Wild Animal Keepers who are prepared to discuss international keeper exchanges. I have passed this correspondence on to the Executive Secretary of the AAZK, Mr. Rick Steenberg, so perhaps we can see some AAZK/ABWAK cooperation in the near future.

If you would be interested or have any suggestions for a keeper exchange program with the Buffalo Zoo, please drop us a line.

NOTEWORTHY HAPPENINGS AT THE BUFFALO ZOO

1-13 and 1-14-75 1.1 Serval born and successfully hand-reared.

2-10-75 0.0.1 Two-toed sloth born and currently being successfully hand-reared.

3-4 and 4-9-75 Two fertile Andean condor eggs laid and being artificially incubated. Looking fine so far.

* * * * *

SURVEY REPORT the AKF staff

160 survey forms were mailed with the April issue of AKF, requesting the date AKF was received. 45 have been returned. The fastest delivery time was three (3) days (Midwest region) and the longest time was twenty-four (24) days (Canada and Hawaii). The majority of the forms reported delivery times of seven (7) to ten (10) days. Thanks to all who cooperated by returning the form. Also, the encouraging comments were very much appreciated. A few people reported not having received some of the back issues of AKF. Please contact us if that were to happen to you.

1975 ANNUAL WILDLIFE DISEASE CONFERENCE

"Wildlife Disease in Perspective" is the theme of the conference being held in Guelph, Ontario, Canada. The symposium topics include "Diseases in Wild Birds", "Parasitic Diseases of Poikilothermic Vertebrates", "Diseases of Wild Mammals", "Diseases of Waterfowl" and "Diseases of Marine Mammals". For further information contact: Office of Continuing Education, Room 145 Johnston Hall, Univ. of Guelph, Guelph, Ontario, Canada N1G 2W1.

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DEADLINE FOR THE JULY ISSUE OF AKF IS...
20 JUNE

RED-TAILED HAWK BREEDS IN INDIANAPOLIS ZOO

Ken Kawata, Curator

A male Red-tailed Hawk, Buteo jamaicensis, arrived at the zoo around 1969. In 1972, a juvenile female joined him. This female had lost the right metacarpals. In the spring of 1974, while they were housed in a small cage, copulation was observed and two eggs were laid. Due to inadequate facility, however, an egg was broken and the other egg was found rotted.

In order to promote breeding, an octagonal corn-crib cage was chosen exclusively for this pair. The birds were placed in this cage on 18 December 1974. Nest building was observed early in January, 1975. Between 27 February and 18 March, copulations were seen and the first egg was laid on 21 March. Two days later the second egg was laid, and the third egg was found in the nest early on 29 March. The immediate area was fenced off from the public, to provide the birds with more privacy.

Two hawklets hatched on 28 April. The third hawklet was found early on 30 April. The female parent has become increasingly aggressive towards people. The male parent built the nest, and assisted in incubation and feeding the young. At this writing of 18 May, all three hawklets are growing rapidly.

BIRTH IN LOS ANGELES ZOO Mike Dee, L.A. Zoo

May 10 saw the arrival of the first elephant to be born in the Los Angeles Zoo and the first Asian Elephant "second generation" captive birth in the Western Hemisphere. Both Metu and her mate in Portland were born in captivity. Her mate, Packy, was the first born in the Western Hemisphere. Keeper John Kitchen reports everything is "looking good". Metu and her half-sister Hanako, also from Portland, keep the baby between them as a protective measure. Kitchen noted the baby does a little running and flaps his ears in recognition. Hanako is presumed pregnant and, according to breeding records, should give birth within the next three months.

SUGGESTED READING:

Smithsonian, Vol. 6, No. 3, June 1975, pp 38-45. Moss, Cynthia "That Ugly Hyena Turns Out to be a Superb Predator".
National Wildlife: Vol. 13, No. 4, June-July 1975, pp 4-13. Reiger, George "Epitaph for the Whale?".

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VOLUME II, NUMBER 7

JULY 1975

RARE PRIMATE BIRTH at San Antonio, Texas

The San Antonio Zoo has recorded a birth as rare as the animal itself. The zoo's pair of Golden Lion Marmosets produced what is believed to be the first third generation captive born youngster of the species.

The twins, one male and one female, were born on 31 March 1975. The male baby was killed on April 7 in what appeared to be a fight between the parents over custody of the young. The female baby is being raised by both parents. (San Antonio's News from the Zoo, May-June 1975)

MORE FALCONS FOR COLORADO

In an effort to restore falcon stocks in Colorado, the state's wildlife division last spring placed 14 young prairie falcons in the nests of wild falcons, which successfully reared them. Two young peregrines were also successfully released. (Oryx, April 1975)

NEW BOOK

"Breeding Endangered Species in Captivity", edited by R.D. Martin, March 1975, approx. 450 pp. Published by Academic Press, 111 Fifth Ave., New York, NY 10003. \$33.75.

FROM THE AKF STAFF

Many thanks to Jerry K. Houghlan of Hill's Division, Riviana Foods (ZU/PREEM) for his help in maintaining the computer mailing list. AAZK and AKF appreciate Jerry's support and encouragement.

Copies of "Research in Zoos & Aquariums", the proceedings of the Symposium of the Institute of Laboratory Animal Resources, are available at \$7.25 per copy, postage prepaid. Order from the National Academy of Sciences, 2102 Constitution Ave. N.W., Washington, DC 20418.

DATES TO REMEMBER

51st National Conference of the American Association of Zoological Parks and Aquariums (AAZPA), Calgary, Alberta, Canada - September 14-18, 1975.



"Animal Keepers' Forum" is a non-profit monthly publication distributed to professional zoo keepers independently, and by the American Association of Zoo Keepers as a service to its members. "Animal Keepers' Forum" includes news and official announcements of the American Association of Zoo Keepers, formerly published in "The Keeper".

WHERE IS SEDGWICK COUNTY?*Rick Steenberg, St. Paul's Como Zoo, St. Paul, Minnesota*

A number of people found out recently, when the keepers of the Sedgwick County Zoo hosted a Midwest Regional Conference of the AAZK. Without help, direction or even encouragement from any of us, they put together one of the finest conferences we've had. Almost five dozen people were registered, coming from as far as Washington, DC and Los Angeles. A great turnout of a great bunch of interested people!

There were papers on such diverse subjects as the National Zoo's pandas, ISIS, Boise City Zoo's nocturnal shelter, infant and mother gorilla behavior, studbooks, lunar rhythms, education at zoos, breeding of the red-tailed hawk and current legislation affecting zoos. There was also an informal discussion of AAZK business and a general bull session concerning some of our problems as well as some of our hopes. It was agreed we ought to try and tackle a "national" conference annually. They need not be grand and elegant affairs, their purpose is education and information. Ways to raise money to join ZOOACT and contribute to ISIS were discussed. We also need to expand our contact with AAZPA and AAZV, especially now, during these trying legislative sessions. You'll hear more on these subjects. Large numbers of potential members are being lost or overlooked. We must find ways to attract them (back). It was brought to our attention that there are persons joining some chapters without contributing to national membership. Constitutionally, this cannot be permitted.

Aside from the sit-down papers and discussion, we were treated to a tour of the Sedgwick County Zoo. A unique experience, we ran from cover to cover through downpours of "Kansas Sunshine". An inexpensive conference, too, we were served all our meals--from Sunday evening through Tuesday noon--courtesy of our hosts. A barbeque, a banquet and even a pair of git-pickin' musicians! Entertainment and good fellowship certainly were not lacking! We all owe the keepers, their director, Ron Blakely, and the Sedgwick County Zoological Society a debt of gratitude. They certainly showed us all that Southern Hospitality is alive and living in Sedgwick County!

Where IS Sedgwick County? It's in the Southeastern quadrant of the State of Kansas, along I-35 (the Kansas Turnpike) about 50 miles from the Oklahoma line. It's where Wichita, the Sedgwick County Zoo and a welcome that can't be beat are found!

GRIEVANCES*Rick Steenberg, AAZK*

This might be an appropriate time to remind all of our members that the Association is NOT a grievance committee. Nor is it intended to be used as a common bitch box. Incidents of harangues denouncing local administrators or fellow workers are an embarrassment to the professional nature of the Association and must be dealt with promptly and appropriately. I intend asking the Board of Directors to issue reprimands to members who so damage our reputation. Such incidents must not be allowed.

NEWS FROM THE MILWAUKEE CHAPTER*Bob Hoffmann, President, Milwaukee Chapter, AAZK*

The first meeting of the Milwaukee Chapter of AAZK was held on May 21, 1975. We had the privilege of having Dr. G.E. Downing, one of the Zoo's consulting veterinarians, as guest speaker.

Four keepers from Milwaukee attended the AAZK Regional Conference in Wichita. They were Sam LaMalfa (Primates), Roger Martens (Pachyderms), Dave Renock (Pachyderms) and Bob Hoffmann (Hoof Stock). The entire staff of the Sedgwick County Zoo should be proud of a job well done. The papers given were outstanding and very informative. All in all it was a very enriching and fun-filled time for all who attended.

OF VETERINARIANS AND KEEPERS

COOPERATION AND OBSERVATION

*Stuart L. Porter, BS, VMD, Overton Park Zoo & Aquarium,
Memphis, Tennessee.*

A zoo veterinarian can't possibly accomplish very much without keeper cooperation. Most zoos are just too big for any one person to know what is going on with each animal. The keepers are the eyes and ears of the veterinarian, and when they suspect a problem with one of their charges, they must report it with as much detail as possible. Nothing is more frustrating than to be told an animal is sick and when you ask "what's wrong with it" to be told "I don't know, it's just sick. Cure it!"

Any time a pet owner takes his sick pet to a veterinarian's office he is asked a series of questions which comprise the history. The history is very important to any diagnosis. Some diseases show specific signs. At other times, at least the organ-system involved may be determined from the history. Signs of disease vary from very specific to very general and only with keeper-veterinarian cooperation can accurate conclusions be made.

The keeper must know what normal is for every one of his charges. By normal I mean everyday behavior, eating habits, gait, odors, discharges, fecal and urination characteristics. Unlike domestic animals, most physical examinations on zoo animals must be performed while they are immobilized. This itself is a stress and is not without risk to the animal. Thus it is important to be able to tell from the keeper's description whether all this stress is warranted or, in other words, does the animal really need to have a physical.

So what are the signs of disease? The following is meant to be a guideline of what keepers should be looking for and what a veterinarian may consider significant. Any one sign by itself may be normal for a specific animal, but all should be noted either mentally or on paper.

Signs of disease and noteworthy characteristics:

1. Change in behavior - a quiet animal becoming vicious, or an active animal becoming listless, depressed. Collapsing, pain, convulsions or fits.
2. Change in defecation - diarrhea, foul odor, white specks or blood present; increase or decrease in frequency or amount, foreign objects present, straining.
3. Change in urination - increase or decrease in frequency or amount. Absence of urine. Presence of blood or pus; straining to urinate.
4. Discharges - from eye, nose, vulva, penis; amount, color, consistency, and odor are very important.
5. Coughing, sneezing, gagging. How often and how much.
6. Limping or refusal to rise - which leg.
7. Change in appetite or water consumption - eating less or none at all. No interest in food. Drinking more water.
8. Lumps and bumps - size, location, rate of growth.
9. Change in appearance - loss of hair, feathers, etc., dull coat, losing or gaining weight suddenly.
10. Shortness of breath; tires easily.
11. Regurgitation or vomiting. When occurs in relation to eating; how much, what's present.

It is important that the keeper be able to describe in as much detail as possible exactly what he or she saw the animal do. This gives the veterinarian a lot more information so that he may determine what to do next, if anything. Who, what, when, where, how often and how much are as important to the veterinarian as they are to the journalist.

(Cont'd on page four)

Another way the keeper helps the veterinarian as well as his charges is by watchfulness over the captive environment. Foreign objects such as nails, wire, polaroid film and glass can lead to the demise of the healthiest of animals. Enclosures should always be inspected as often as possible. Strange plants should be investigated. Some very pretty plants, such as the ginko tree, are highly poisonous.

Keepers should also be aware of their potential role as a spreader of disease, especially hoof stock and primate keepers. Boots should be cleaned as a keeper goes from lot to lot to prevent carrying parasites from herd to herd. Also, primates are very susceptible to many human diseases. The dedicated primate keeper who comes to work in spite of his cold is doing his charges a great disservice.

Thus it is apparent that it is the keeper who is mainly responsible for the health and welfare of his or her charges. The veterinarian merely serves as an advisor and hopefully the ultimate miracle worker if something goes wrong. Cooperation between the keeper and veterinarian is essential for a good health-care delivery system.

* * * * *

KEEPERS AS EDUCATORS? - CONSERVATIONISTS?

Gay Kuester, Brookfield, Zoo, Chicago, IL

Recently I returned from a photographic safari to Kenya, East Africa with a new respect for other cultures, the good old U.S.A. and zoos and keepers. It hit home daily that zoos and wildlife parks are THE only hope for survival of the remaining wild animals. Progress, or so-called civilization, is encroaching so rapidly that the extent of undisturbed habitat is decreasing daily. I wish the people who cry out against zoos, and who insist that animals be left in their wild state could see the bewildered look of topi, warthog and buffalo as they approach cautiously and sniff and test the new airstrip on the Mara which has destroyed some 20 acres of their grazing land. Yessir, now you can fly right in without a bit of discomfort to see the "wild" animals who surround the airstrip and literally watch you land.

I wish I could agree with Grzimek who said "Serengeti Shall Not Die", but the situation is a matter of economics. When a poacher is paid more for killing one elephant than he would normally earn in a year, it makes it well worth his while to risk getting caught. Besides, the number of game scouts assigned to a game reserve is never enough. While at Samburu we found the animals spooky, and difficult to approach. Later that day we heard that poachers had been caught near the lodge with 300 elephant tusks, 30 giraffe tails, rhino horns and many other "choice" items. 10,000 zebra perished within the last 5 years presumably from the drought; however, authorities feel at least 5,000 of these were killed by poachers. I was also appalled to find that you can still obtain a permit to hunt leopard. Tsavo and Amboseli are thick with elephants, many of whom are starving due to habitat destruction; trees are being felled, burned and made into charcoal -- a lucrative export.

If, as a keeper, you have had endangered animals on your run reproduce, your responsibility for that animal's well being has done more to help his survival than has his native country.

Your contact with the public reaches as many people as prime time TV. Your job is as much public relations, salesman, conservationist and educator as it is keeper. If you can reach some of the 112 million people who visit zoos annually, it is a start.

Land that is unfit for animals will eventually be unfit for human habitation as well. If, by your attitude and concern, you can convey the necessity of your zoo's existence and stress the preservation of animals and their habitat you will have well earned your title of keeper and can be very proud to be one.

PHOO ON THE ZOO

Orson Bean (Reprinted from the Los Angeles Free Press,
February 1975)

Zoos are a drag, whether glorious as in San Diego or foul as in Central Park. The avowed purpose of zoological gardens is to instruct and inform, but they don't show us how wild animals live or even, really, what they look like.

The fact is, animals look quite different in zoos from the way they look in the wild, just as human beings look different while serving time in the pen.

Some animals, like elephants, seem more resigned than others to life in captivity. The big cats appear most troubled, pacing back and forth endlessly, with sad, dull eyes and lackluster coats.

Lots of animals won't mate in captivity. Their sexual instincts are part and parcel of their hunting, prowling, survival instincts, and when they're deprived of the right to fend for themselves, they lose interest in the whole package.

Or maybe they stop feeling horny because of the bad company they're forced to keep. Having human beings around is enough to give a tiger a soft-on. The oldest and most pre-historic of beast, like certain of the rhinos, won't mate if civilization moves within a hundred miles of them.

An animal has a force field around him that seems to be part of his very self. George Leonard, in The Transformation, tells of stalking a heron with a camera. No matter how careful he was to be quiet and stay down-wind, every time he got within 1500 feet of the big bird, it seemed to become aware of his presence, glancing around and then moving a couple of hundred feet away to resume its feeding.

If we permanently invade an animal's force field or area of privacy, as we do in even the freest of zoos, we change him and he becomes a different creature.

Animals in the wild are rational and therefore not dangerous most of the time. When a pride of lions has eaten its fill, it's not about to go hunting for a while, and antelope and gazelles seem to know this and they come to graze contentedly and safely a few hundred yards away. A couple of days later it's a different story. The lions begin to feel rumblings in their stomachs, and the antelope sense this and start getting nervous.

Zoo animals, out of touch with their natural instincts, are irrationally dangerous and a potential threat all the time. Many a keeper has been badly mauled in the very act of placing a choice piece of horse steak on the floor of a lion's cage.

It seems to me that society's unconscious purpose in maintaining zoos is the same as Tutankhamen's was, when he trapped and caged black panthers to live in the royal palace at Luxor in order to prove that nature can be conquered - both outside and inside the human body.

Bands of school children appear to have mixed feelings when their teachers guide them through zoos. They titter at the monkeys and gasp at the hippos, as expected, but off at the side of the group sometimes a young boy can be seen standing quietly preoccupied and somehow troubled in the zoological gardens. "Cage the beast in yourself", his society seems to be warning him, "or as you can see, we're capable of caging it for you." Do the leopard's lackluster eyes and restless pacing remind him of his father in the furniture business...and of the job that waits for him there?

What do you say we phase out the zoos and hire the Disney Company to create a whole new zoological concept for communities that want to show how animals really live in the wild? If the Disney people worked with naturalists like Jane Goodall to make their automated robot-creatures look, move and act the way real ones do, an African Safari ride, like the one at Disneyland, could be thrilling and truly educational.

But it would be quite a different experience a kid took home with him from a zoo like that...one the city of San Diego might tend to find a bit subversive.

LETTER TO THE EDITORWilliam D. Holmes, Los Angeles, CA (Reprinted from the Los Angeles Free Press)

Dear Editor,

Orson Bean may be an acknowledged humorist, but his recent article entitled "Phoo On Zoos" came off like a joke in very poor taste. In fact, it was so much gibberish. It is one thing to have an opinion and quite another to be a self-appointed authority on a subject that requires years of study concerning animal behavior, both in wildlife's natural and captive states. I doubt if Bean qualifies.

Apparently zoos are a drag to Bean, as he so eloquently states, but they serve as a vital outlet for education, entertainment and relaxation to hundreds of millions of people both here and abroad. If Bean thinks a zoo's concern is "to prove Nature can be conquered", I suggest he spend more time with naturalists and zoologists - an effort he quite obviously ignored. No one enjoys the fact that any animal can be confined in a captive state and especially those women and men responsible for the care of zoo animals. Nevertheless, zoos and game preserves are, indeed, the last stronghold for exotic wildlife - and unless the mass murder of animals by poachers can be stopped, then zoos shall be the one hope left for the survival of our endangered wildlife.

Bean suggests "some animals like elephants seem more resigned than others to life in captivity." No wild animal is resigned to captivity, but captive wild animals can be either reasonably content - even happy - or they can assume an aggressiveness or withdrawal depending on the type of care and exhibit space offered them. If the big pacing cats you've observed, Mr. Bean, appear most troubled, you must be referring to carnival exhibits held in 6' x 10' cages and certainly not the great roaring cats displayed in California's mainstream zoos located in Los Angeles, San Francisco and San Diego.

As for your observation that "lots of animals won't breed in captivity," take a look at facts, not hearsay. Sure, giant pandas have only bred in the Peking and Shanghai zoos, but why make a sweeping statement about the rest of the animal world? I don't know what you meant by "certain of the rhinos won't mate if civilization moves within a hundred miles of them." The African and Asian rhinos, presently residents in zoos all over the world, haven't read your article yet. Breeding results are yours just for the asking.

Actually, the breeding of captive animals is being improved yearly - so much so that many species of the nearly extinct animals will survive for your grandchildren to enjoy. Admittedly these animals may be in zoos, Mr. Bean, but isn't that better than you showing youngsters photographs in books of extinct animals - those same animals you as a boy enjoyed seeing alive?

For your information, Mr. Bean, zoo animals are never without their natural instincts. In groups, they still maintain a social order and even territorial rights if display areas permit. All wild animals are unpredictable, be they confined or living in a free state; but for you to say zoo animals are irrationally dangerous simply is not so. Again it depends on the ability and personal concern of the zoo director, his curators, veterinarians and animal keepers.

In closing, I have one observation concerning Bean's proposed community exhibits similar to Disneyland's mechanical African Riverboat Ride, as replacements for zoos: Automated robot creatures are not reality, Mr. Bean - nor was your editorial critique about zoos.

Don't confuse me with the facts. - O.B.

* * * * *

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WOODLAND PARK ZOO'S "PROJECT CASPER"

*Laurence Gledhill, Woodland Park Zoo, Seattle,
Washington*

Without a doubt, the most notable achievement of the Primate Department of the Woodland Park Zoological Garden has been the establishment of an exceptionally successful Lion-tailed Macaque breeding program entitled "Project Casper" after the alpha male. At the present time, with 17 individuals, our collection is the largest in captivity. Since 1960, fifteen young have been born in the collection, and of these, seven have been born since 1971 when as a result of world wide concern for the preservation of this species, they were designated to receive the primary emphasis of our reproductive efforts.

Due to our successes and to the increased cooperation between zoos in breeding projects, Woodland Park Zoo has acquired Liontails from Portland, Oregon, Vancouver, B.C. and Honolulu, Hawaii. One of our most prolific females was a non-breeder received from the Portland Zoo early in 1972, who has produced three young, including two within one year, the latest being born April 10, 1975. Currently, at least one more female in our collection is pregnant.

The main thrust of our investigation during the previous year has been centered upon a world wide survey of the reproductive experiences of zoos reporting breeding success. This survey has had extremely favorable cooperation from zoos world wide and has disclosed several significant parameters of conditions among the successful collections. This will now be followed by an additional survey of the conditions existing in the non-breeding collections to ascertain if those coinciding conditions found in the breeding groups are absent in the non-breeding groups. As an adjunct to the survey, contact has been made with Dr. Stephen Green, of Rockefeller University, and the Bombay Natural History Society, who is currently conducting a major Liontailed Macaque field study in India. As a result of several correspondences, insights into Liontailed husbandry have been gained and corresponding changes have been made in our diet and maintenance procedures. Additionally, several of our theories have been reinforced by observations of field conditions and actions. Dr. Green is currently compiling a conservation and status paper on the Liontailed Macaque for the World Wildlife Fund and will be incorporating our survey findings in his report.

In addition to the work done in attempting to determine factors necessary to obtain natural reproductive results, we have also been engaged in experimentation in the field of physiological stimulation of reproduction. With the use of Human Chorionic Gonadotropin (HCG) injections, we have been able to successfully induce a non-breeding male to actively mate with estrus females whom he had previously ignored. To date, we have not had a conception as a result of this technique, but hopefully in the near future several problems which seem to have arisen will be worked out and reproductive success will be obtained.

Our research findings will be concluded and submitted for publication in the next several months and will hopefully assist in the captive management and breeding of Liontailed Macaques. We feel that with the completion of our survey and with the further expansion of our knowledge of the Liontailed Macaque reproductive requirements, 1975 holds great promise of additional achievements in the maintenance and reproduction of this elegant and endangered species.

* * * * *

*Deadline for the August issue of AKF is 20 July 1975. Send news and articles to:
AKF Editors, 635 Gage Boulevard, Topeka, KS 66606.*

THE VIEWS OF THE AUTHORS MAY NOT NECESSARILY REFLECT THE VIEWS OF THE AKF STAFF.

MORE ON ANIMAL SHOWS: A PERSONAL OPINION

Barbara Bailey, Indianapolis Zoo,
Indianapolis, Indiana

Three cheers for Randy McGill on animal shows! This question of performing animals has long been a bone of contention among keepers, as well as administrators. If animals are truly considered "ambassadors of their species" in zoos, why will a zoo prostitute these animals by lowering them to human characters and activities? Each species has its own set of behaviors and each individual its own personality. These should be introduced to the public and will prove at least as entertaining as animal performances. From personal experience, I know as many people have been awed and delighted by meeting a porcupine going for a walk on the zoo grounds with its keeper than have been entertained or educated by the elephant being put through her paces. I have seen a bigger crowd around the peacock doing his display ritual (unannounced over the loud speaker) than any animal lecture all season.

As animal keepers, we know the ways and potentials of our charges and these potentials should be exemplified for the public. "Occupational therapy" for highly intelligent and sociable species (such as chimps and elephants) displayed singly is very necessary. But why don't we teach that chimp to make a nest instead of roller skate? One activity is a functional natural behavior release (and educational to the public) while the other reinforces the general public's misconception that man is removed from and should be in control of the other animal species of our world. This is a disservice to both species.

A truly concerned keeper should accept the challenge of his individual animals' needs and try to fulfill them, utilizing them to promote a better understanding of that animal by the general public.

* * * * *

AAZK CONFERENCE 76 - August 23-27, 1976

The site of the 1976 National AAZK Conference is San Diego, California, and plans are well under way for this most important conference. We hope you plan to visit the birthplace of AAZK, and also hope you will participate in the festivities.

If you wish to present a paper, slides, film, etc., please forward title, subject of film, required equipment as soon as possible. You will be assigned a time on our program and will be notified in advance of program publishing.

Plans for the 1976 National AAZK Conference include tours of the San Diego Zoo and the San Diego Wild Animal Park. A luncheon will be included with each tour (included in registration fee).

Send us a photo of your zoo, or poster, or whatever, for our national display, and let us know soon if you plan to attend.

Conference registration fee will be \$30.00 per person and will include banquet, cocktail reception, luncheons, etc.

Headquarters Hotel for the Conference will be the Sheraton Airport Inn, on beautiful Harbor Island in downtown San Diego.

Complete hotel information will be published in a later edition of AKF.

PLEASE MAKE CHECKS AND MONEY ORDERS PAYABLE TO: AAZK Conference 76.

PRE-REGISTRATION FORM (1976 AAZK National Conference). Send to: Gerald Thomas, Conference Chairman, 3743 Brems, San Diego, CA 92115.

I plan to attend the 1976 National AAZK Conference in San Diego.

NAME _____

Remember the conference dates:
AUGUST 23-27, 1976

ADDRESS _____

Early registration will help
us plan - mail yours now.

CITY _____ STATE _____ ZIP _____

Number in Party _____ ZOO _____

Registration fee: \$30.00

() I will present a paper, etc.

Enclosed is a check for _____ registration(s) () I will pay later.

ANNUAL CONFERENCES Sue Lackey, St. Paul, Minnesota

The Constitution presently states (Article VI, Meetings, Section 1): "Regular meetings shall be held every second year at such time and place as fixed by resolution of the Board of Directors and designated in the notice of meeting". There has been considerable discussion about changing the National Conference from a biennial to an annual event. The rationale behind this is that an annual conference would enable the Board of Directors to bring matters to the general membership for ratification yearly rather than tabling matters while awaiting a biennial conference. Please indicate your views below:

☐ Yes, I favor changing the Constitution to provide for an annual AAZK National Conference.

☐ No, I do not wish to see a change in the Conference schedule.

Results of this survey will be forwarded to the Constitutional Review Committee for consideration.

Send to: AAZK Headquarters, 8415 Bacardi Av. W., Inver Grove Heights, MN 55075.

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Volume II, Number 8

August 1975

FORMER AAZK EXECUTIVE SECRETARY BECOMES ZOO DIRECTOR

Richard G. Sweeney, founder and former Executive Secretary of the American Association of Zoo Keepers, has been named Director of the Beardsley Zoological Gardens in Bridgeport, Connecticut.

BRONX ZOO New York Zoological Park

Two Mongolian wild horses (Equus przewalski), also called Przewalski's Horse, have been born at the Bronx Zoo. The foals, a male born on 2 June to Roxy, and a female born 2 July to Rockann, are the first Mongolian wild horses to be bred at the Bronx Zoo in 46 years. The herd male, Bertland, is the father of both foals. The present herd was established in 1968 with the arrival of the male, Bertland and the two females, Roxy and Rockann. A second male, Charlie Khan and two additional females, Peggy Genghis and Sultana, were added to the group last October. The foals remain nameless.

There are only about 230 specimens living in the world's zoos, and the species is probably extinct in the wild.

DETROIT ZOO Randy McGill, Detroit Zoological Park

On 7 June, the Detroit Zoo had an unexpected birth...a Snow Leopard (Felis uncia) was born. There was no indication the male and female had even discovered each other since arriving in late 1969. They were imported from Russia.

The kitten was removed immediately when its mother failed to show any interest in it. Dr. James Savoy, Zoo Director, and Ester Steinbruegge, veterinary assistant, are raising the baby. The kitten is gaining an average of one ounce per day. This is the first birth of its kind at the Detroit Zoo.

AAZK BIENNIAL ELECTION INFORMATION AND BALLOT

Following are the candidates for the three vacancies occurring on the Board of Directors as of December 31 of this year. Please study the brief biographical sketches carefully and cast your votes now. It is important that we have active, interested people on the Board and it is up to you to choose.

BELA J. DEMETER, Reptile Keeper, National Zoological Park, Washington, D.C. Time as a keeper - 2 years. Age - 28. B.A., Psychology, University of Florida; Biological Parks Technician Program graduate, Gainesville, Florida. Member AAZK - 1973 to present. Regional Coordinator - 1974 to present. Chairman, Nominations-Elections Committee. President, D.C. Chapter, 1973-74; Treasurer, 1975; Speaker Program Chairman, 1974 to present. Contributor to AAZK Newsletter.

ELIZABETH S. FRANK, Large Mammal Keeper, National Zoological Park, Washington, D.C. Time as keeper - 2 years. Age - 24. B.S., Animal Science, working on M.S., Physiology, University of Maryland. Member AAZK - 1974 to present. Active in Speaker Program.

CHRIS LaRUE, Head Keeper, Topeka Zoological Park, Topeka, Kansas. Time as keeper - 6 yrs. Age - 25. B.S., Wildlife Biology, Kansas State University. Member AAZK - 1968 to present. Regional Coordinator, 1973 to present. President, Topeka Chapter, 1971-73. Editorial Staff of ANIMAL KEEPERS' FORUM, 1974 to present. Contributor to AAZK Newsletter.

ED. ROBERTS, Supervising Zoo Keeper, Stone Memorial Zoo, Stoneham, Massachusetts. Time as keeper - 21 years. Age - 51. College, special course "Care of Wild Animals in Captivity". Member AAZK - 1968 to present. Former Regional Coordinator and Vice-President of Board of Directors. President of Board of Directors. Contributor to AAZK Newsletter.

PAT SAMMARCO, Animal Keeper II, Lincoln Park Zoo, Chicago, Illinois. Time as keeper - 12 years. Age - 28. Two years pre-veterinary medicine, University of Illinois. Member AAZK - 1968 to present. Secretary, Lincoln Park Chapter, 1968-74 (except '71). Set up multi-zoo seminar 1972. Contributor to AAZK Newsletter.

PAT WIARD, Animal Keeper, Lincoln Park Zoo, Chicago, Illinois. Time as keeper - 1 year. Member AAZK, 1974 to present.

CURTIS WILLIAMS, Senior Zoo Keeper, Boise City Zoo, Boise, Idaho. Time as keeper - 6 yrs. Age - 34. Boise Junior College, 1½ years. Member AAZK - 1971 to present. AAZK Board of Directors, incumbent; Conference Chairman, NW Regional AAZK Conference, 1973. Regional Coordinator, 1972 to present; Exhibitor Committee Chairman, 1974 National Conference. Contributor to AAZK newsletter.

SECOND THOUGHTS ON H.R. 6631 & H.R. 70 Tom Goldsberry, Portland Zoo, Portland, Oregon

I hope by this time every keeper has received and thoroughly studied their copies of H.R. 6631 & 70, the bills establishing a Federal Zoological Control Board. If you haven't, run, don't walk, to your nearest mail box.

In addition to the noxious section on keeper licensing, some of the other goodies are well worth mentioning. Because Section 208 of H.R. 70 and Section 241 of H.R. 6631 are almost identical in wording, I will use H.R. 6631 as the example because it was introduced later. Section 241 is entitled Petitions and Suits and falls under the general heading of Citizen Participation. Under sub-section (a) it allows, on the whim of any "interested person" that the Board may undertake an investigation to determine if your zoo should have its license revoked. Even if the charges proved unfounded a couple of these "investigations" would still be enough to leave a bad taste in the mouth of your City Hall or funding Zoological Society.

Going further, we find in sub-section (b), that a district judge may hear any action in this matter without regard to the citizenship of the parties involved. A curious statement. Does this mean that every zoo would be subject to allegations of literally everyone in the world? Just how much "citizen participation" do we need? Every busload of tourists who visited your zoo would be free to file suit against you and your zoo.

But, aside from the "citizen participation" farce and the Great License Rip-off, the most devastating part of the entire bill is sub-section (b), Membership, in Section 101, Establishment and Composition of Board. This reads: "The Board shall be composed of ten members, each of whom has had practical or professional experience in the care and handling of zoological animals in captivity, to be appointed by the President, by and with the consent of the Senate, as follows..." It goes on to list the various organizations from which the members will be chosen; animal welfare organizations (2), Department of Commerce, zoo director, etc.; but, nowhere is there ANY mention of AAZK or zoo keepers in general. If we keepers have not "had practical or professional experience in the care and handling of zoological animals in captivity" then just who the hell has?!

It seems incredible that some 2500 men and women who are engaged in the day-by-day care and welfare of animals should be systematically excluded from a Bill that is supposedly aimed at that very goal. All of this on top of the \$100. license. That's taxation without representation and I believe we had a war over that once.

I would like to urge our officers and executive board to make this their number one priority: That H.R. 6631 & H.R. 70 may not be passed. Fine, but, no doubt similar bills will be introduced in the future and we should be ready.

Personally speaking, unless some drastic changes are made, I'll pay my \$100. the same day I pay my Brownie dues.

FLOWER POTS AS INCUBATORS FOR SNAKE EGGS

Flower pots at the Metro Toronto Zoo are being used for a very unusual purpose. Sr. Kpr. Bill Amundsen is using the pots as incubators for seven mangrove snake eggs. The flower pots are filled with damp peat moss and the white elongated eggs, measuring 2 1/4 inches long by 3/4 inch wide, are placed in a plastic bag which is blown up, sealed and kept in a temperature-controlled environment at 26°C. The incubation time is 120 to 140 days. (Metro Toronto Zoo)

THE KEEPER IS COMING

The deadline for The Keeper, the annual journal of AAZK, as announced in the May issue of AKF, is drawing near. The deadline for submitting articles is 1 Sept. All articles should be sent to AKF Editorial Staff, Topeka Zoo, 635 Gage Blvd, Topeka, KS 66606. The Keeper will contain technical articles covering subjects dealing with captive management of wild animals. These papers will be written by animal keepers and published by AAZK as an educational service to all professional keepers.

ISIS - A COLLECTING AND SHARING OF CAPTIVE ANIMAL STATISTICS

Linda Murtfeldt, ISIS
Systems Manager, St. Paul, MN

Modern day zoos are faced with the challenge of developing self-sustaining populations of captive exotic species and perhaps in selected instances of providing the only reservoir for species on the verge of extinction. To meet this problem it is necessary to develop policies for the management of gene pools over multiple generations and to collect data and share it. North American zoos are confronting this challenge head on through the International Species Inventory System (ISIS).

The collection of census and vital statistics data is presently being accomplished by ISIS of the American Association of Zoological Parks and Aquariums (AAZPA). ISIS can also provide pedigrees, studbooks and the data for analysis of breeding relationships within the captive population. Information for management purposes and data needed for life history analysis will also be provided.

ISIS had its beginning in Houston, Texas at the October 1973 meeting of the AAZPA when Dr. U.S. Seal and Dale G. Makey of Minnesota proposed the program to the board and membership. The program was adopted and initial financial support was approved. Since then grants and gifts totaling \$67,240.00 have been received by ISIS. An additional \$10,267.00 in operational funds has been provided to this date by 38 participating institutions as their \$1 per mammal per year voluntary assessment voted by the AAZPA at its annual meeting in Philadelphia in October 1974. This assessment will be mandatory beginning July 1, 1975.

ISIS is housed at the Minnesota Zoological Garden offices in St. Paul, Minnesota and will move to the zoo site in Apple Valley, Minnesota upon completion of this new facility. Use of the IBM 370-158 computer, part of the state computer system, is also made possible through the relationship with the Minnesota Zoo. Personnel for ISIS includes Linda Murtfeldt, ISIS System Manager and Zoological Records Supervisor for MZG and keypunch operator, Kim Hastings.

Progress of ISIS as of June 17, 1975 has far exceeded the expectations of all who participated in the original formulation, presentation, and discussion of the program. The program currently has 174 zoos signed as participants. Ninety-eight zoos are actively submitting data on their mammal collections. Forty-six zoos have completed their inventories and are on a current basis. Data forms have been received on more than 18,000 mammals. Computer output inventories are being returned to all zoos who have completed submission of their data. The first national inventory of all data available to the system was completed in early May. Copies of this national inventory in a microfiche form have been returned to all participants who are submitting data. Hard copy of selected portions of this national inventory have also been made available.

Each participating zoo has been provided with a set of three manuals: the ISIS Mammalian Taxonomic Directory, the ISIS World Geographic and Zoological Institution Directory, and the ISIS Institution Procedures. The Mammalian Taxonomic Directory contains a listing of all living mammalian species, each taxon including the scientific name, a vernacular name, and the approximate distribution in the wild. The primary reference source for the organization of orders, families, and genera is Anderson and Jones (editors), Recent Mammals of the World, the Ronald Press Co., New York, 1967. The taxonomic literature from 1966 to date has been consulted for the revisions made. This literature plus regional and country check lists have been utilized for the assembly of the species listings.

The World Geographic and Zoological Institution Directory contains a hierarchical code system for the listing of all regions, subregions, countries, states and Zoological institutions (zoos, aquariums, museums, dealers, special collections and researchers) throughout the world.

One data sheet is filled out for each animal within a zoo. This form contains information


on taxonomy, individual identification, sire and dam, place of birth or capture location, sex, age, transactions which occur and between whom, hybrid status, death and autopsy information, tag and tattoo numbers, studbook identification, marine mammal permit numbers, postentry quarantine numbers, endangered species permit numbers, price and color phase. Each zoo keeps one copy of the form for its files and sends the original to ISIS. After review for completeness and accuracy by the system manager, the information is punched on keypunch cards and then sent to the computer for input.

The Bird Taxonomic Directory is near completion and will be printed and distributed late this summer to all participating zoos who have completed their mammal inventories. Reptiles, amphibians and fish will follow in the near future.

Two new subsystems, Life History and Physiological Norms, are in the trial run phase at this time. One thousand data forms of each are being distributed to about 25 zoos for a test run this summer. The Physiological Norms program of the American Association of Zoo Veterinarians (AAZV) will be carried out by zoo veterinarians. It will collect and collate baseline laboratory data and will be used for select specimens of special interest at each institution. The Life History format has been developed by a group of zoo personnel headed by Paul Linger, Assistant Director of the Denver Zoo. It includes behavioral data, management procedures, growth statistics and animal husbandry information. It, too, is designed for use with a select group of animals. Certainly, however, if a zoo wishes, it will be able to complete forms recording both physiological norms and life history data for its entire collection.

Personnel from all phases of zoo work are actively engaged in the ISIS system. Data forms are being filled out by everyone from directors to curators to record keepers to animal keepers to secretaries. Veterinarians and researchers are becoming actively involved. A real team effort is necessary if all vital information is to be obtained so that zoos may develop systematic long-term management and propagation programs for captive species.

New Inventory Data

Scientific Name		SPEC ID		
Common Name		HOUSE NAME		
TATTOO NO.		LOCATION		Comments
TAG NO.		LOCATION		
I. Common Data				
SEX	AGE	SPECIES		
(1) SEX	(2) AGE	(3) SPECIES CODE		
(4) TRANSDOM CODE		(5) INSTITUTION CODE		
(6) TRANSACTION DATE		(7) SPECIMEN ID		
II. Birth Data				
SIRE	DAM	SPECIES		
(1) SIRE	(2) DAM	(3) SPECIES CODE		
(4) BIRTH DATE		(5) BIRTH ID		
(6) BIRTH LOCATION		(7) BIRTH DEPTH		
III. Vital Statistics Data				
WEIGHT	LENGTH	WEIGHT	WEIGHT	
(1) WEIGHT	(2) LENGTH	(3) WEIGHT	(4) WEIGHT	
(5) LOCATION		(6) BIRTH DATE		
(7) LOCATION		(8) BIRTH DATE		
IV. Transaction Data				
DATE	DATE	DATE	DATE	
(1) DATE	(2) DATE	(3) DATE	(4) DATE	
(5) VENDOR/RECIPIENT CODE		(6) W/A SPEC ID		
(7) PRICE		(8) DELIVERY		
V. Death Data				
DATE	DATE	DATE	DATE	
(1) DATE	(2) DATE	(3) DATE	(4) DATE	
(5) CAUSE OF DEATH		(6) CAUSE OF DEATH		
(7) CAUSE OF DEATH		(8) CAUSE OF DEATH		
VI. Special Data				
SEX	AGE	SPECIES		
(1) SEX	(2) AGE	(3) SPECIES CODE		
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Animalia Nutriology

Dr. Richard S. Patton, Director of Professional Education, Mark Morris Associates, Topeka, KS

Q. How does one determine the correct calcium/phosphate ratio for a given animal?

A. This is an excellent question and, regrettably, there is no sound rule of thumb. However, there are certain basics. The calcium should always be greater. An inverse calcium:phosphorus ratio is far worse than excess calcium for the following reasons: 1) Calcium is poorly absorbed from the gut, while phosphate is absorbed very easily. 2) Calcium readily binds with phosphate to form calcium phosphate compounds which are highly insoluble and pass through the gut into the feces. 3) If there is more phosphate than calcium (inverse ratio), all the calcium will be bound to phosphate and excreted. If there is more calcium than phosphate, there will be some calcium free to be absorbed. 4) Calcium absorption is enhanced by adequate vitamin D levels. I want to emphasize the word adequate. Exposure to

sunlight makes the vitamin D requirement quite small for most adult mammals. To not, a la the health food nut, smother your charges' food plates with vitamin D compounds. For an adult wolf, for example the dietary vitamin D requirement is less than one part per million (12.5 micrograms of cholecalciferol per kilogram of dry diet are required for growth in the canine diet).

As a rule, calcium should be 1 to 2% of a diet on a dry matter basis, in a ratio with phosphorus from 1:1 to 2:1. If one had to pick one level and ratio for all situations or one to use for a short while until the exact needs could be determined, it would be 1.2% calcium and 0.9% phosphorus, on a dry matter basis.

Q. Is there a general rule of thumb in determining the amount of food a particular animal should be fed daily (i.e., some animals will become overweight if given the chance)?

A. A baby bird will eat its own weight in a day. A snake will eat nothing for two weeks. These extremes readily point out that generalizations can be rather useless. Within well defined animal groups, however, some generalizations are possible. First of all, an animal's daily needs are a function of its metabolic rate, which is a function of the ratio of its weight to its surface area. Smaller mammals have more surface area per unit weight than larger ones. (A rabbit's heart rate is much faster than an elephant's)

efficiency vary tremendously from one individual to another, not only within species but even within litters.

Superimposed on this basic axiom is a far more obvious one, as brought out in the question. Metabolic rate and digestive

Rather than try to explain how to express an animal's weight to the 3/4 power (a technique used to extrapolate from one species to another) or trying to list the many rules of thumb (rule of thumbs?) that are known to be occasionally useful, suffice it to say this: Start with 3% of their body weight and watch what happens. If they get fat, cut back; if they eat their pen mate or get skinny, feed more. (This rule of thumb is a dangerous generalization and should be used only in the total absence of any other pertinent facts)

Q. Is there a proper order to present food?

A. Most definitely! For zoo animals, eating is usually the biggest event of the day and they like to maximize the enjoyment of that event. For this reason, the most succulent and tasty foods will be eaten first. Result, they "spoil their dinner", because they don't have a mother to admonish them. Hell, mother's right in there doing it, too. You feed a balanced diet first, when hunger is greatest and selectivity the least. Then follow with dessert.

This rule is most often violated in primates. Feed the balanced complete ration first. When this is consumed then, and only then, should dessert or play things be served up. And don't let your monkeys outsmart you. If they don't "clean up their plate", don't give them dessert. They are every bit as smart as you think. Before long they will realize the goodies follow only when the main course is eaten. The animal behaviorists call it positive reinforcement.

(Nutrition column cont'd)

Q. You often use the term "dry matter" in answering questions. Why is it so important?

A. The term dry matter is important because it is assumed water is always available and costs nothing. To cite an example we are all familiar with, consider a can of dog food from the grocery store. As a rule, it is 75% water and 25% nutrients. It is the 25% that you are after when you buy the can of food, and it is also what the dog needs. When comparing the canned food to a dry dog food, you must remember that the dry food contains over three times the nutrients for the same weight. Said another way, the animal that is fed one can of food gets .25 lb. of nutrients while the animal fed an equal weight of dry food receives

.9 lb. of nutrients. If one were to remove all the water from a tiger's 10 lbs. ration of meat, he would receive about 2 lbs. of nutrients, the exact amount he receives anyway with the water not removed. So the reason we use the term dry matter is to facilitate comparing one situation to another. The polar bear being fed 20 lbs. of fish gets the same dry matter as another bear getting 5 lbs of a commercial biscuit. Only when you have reduced rations to a dry matter basis can a meaningful comparison be made concerning the nutrient quality of a diet.

(send questions for Dr. Patton to AKF Editors, 635 Gage Blvd., Topeka, KS 66606)

CONSERVATION

ALLIGATOR TO BE REMOVED FROM ENDANGERED LIST IN SOME AREAS

America's largest reptile has made a comeback and is no longer thought to be threatened with extinction throughout its range.

The American alligator (Alligator mississippiensis) is doing so well, in fact, that the U.S. Fish and Wildlife Service is proposing three separate actions in the Federal Register (July 8, 1975) that will affect different populations of the reptile throughout the Southeast. (U.S. Fish and Wildlife Service)

THE 1975 WHOOPING CRANE PAGEANT

The final results are yet to be tallied, but the high points of this spring's bio-drama include:

- (1) Frantic and finally successful attempts to scatter nine migrating whoopers off a Nebraska marsh boiling with infectious avian cholera.
- (2) The hot-house hatching and death 15 days later of a fragile whooper chick named "Down".
- (3) The tryout of a bold new foster parent concept involving snatching whooper eggs from nests in Canada and slipping them under sandhill cranes in Idaho; nine of the 14 eggs hatched.
- (4) The natural hatching of 11 of 15 whooper eggs in the wilds of northwest Canada. (U.S. Fish and Wildlife Service)

LAST CHANCE FOR RARE RHINO

The Sumatran rhinoceros has a chance of survival only in northern Sumatra's Gunung Leuser reserve according to a WWF-supported survey. Between 30 and 50 rhinos survive in the reserve. Although traces of the rhino were found in other areas, mounting pressures for development make it unlikely that these can survive. (World Wildlife Fund)

* * * * *

DEADLINE FOR THE SEPTEMBER AKF IS 20 AUGUST 1975
THE VIEWS OF THE AUTHORS MAY NOT REFLECT THE VIEWS OF THE AKF EDITORIAL STAFF

MILWAUKEE CHAPTER NEWS

Bob Hoffmann, Milwaukee County Zoo, Milwaukee, WI

The Milwaukee Chapter held its meeting on June 19, at the zoo restaurant. The guest speaker was Gay Kuester, of the Brookfield Zoo in Chicago. Gay showed slides of her trip to Africa (refer to Animal Keepers' Forum, Vol. II, No. 7). There was a discussion afterward in the Monkey House.

Ed. Note: Milwaukee is to be congratulated for their participation in AAZK and AKF. They have a large chapter, regular meetings with guest speakers, and they regularly submit items for publication in AKF. We encourage more of these activities in other chapters!

NEWS FROM THE MILWAUKEE MONKEY HOUSE

Sam LaMalfa

On the 12th of February, we introduced our 16 yr. old female lowland gorilla "Terra" to our 26 yr. old male named "Samson". Terra was raised from infancy with a different male, "Tanga", but was separated from him because of the rough treatment she received. Samson had been by himself for the last 14 years. The two are very compatible, but no breeding has been observed. On May 28, one of our male red uakaris was shipped to the National Zoo on a breeding loan program, in which the National Zoo will send us a female. A second male was sent to San Diego on June 17, on breeding loan.

LOS ANGELES ZOO NEWS

Los Angeles, CA

Michael Dee,

Animal Keeper Steve Taylor will be the new Acting Assistant Curator in the Los Angeles Zoo's program of keepers working in cooperation with our three curators. Steve will replace keeper Bob Barnes on August 1st. Each participating keeper will be working in that capacity for six months. Zoo Director Dr. Warren Thomas will be spending two to three weeks in Peru, as a consultant during the reorganization and modernization of the zoo in Lima. Dr. Thomas was invited by the Organization of American States, and is looking forward to future exchanges of zoo personnel in training programs of the respective zoos.

* * * * *

SECOND QUARTER TREASURER'S REPORT, AMERICAN ASSOCIATION OF ZOO KEEPERS TREASURY

<u>ITEM</u>	<u>CREDIT</u>	<u>DEBIT</u>
Cash on hand (3-28-75)	\$ 676.41	
Income	1143.00	
Postage		51.69
Animal Keepers' Forum Account		520.00
Refunds (proRata dues, new memberships)		80.00
Patches		384.15
Minnesota Zoological Society - Printing Costs		8.34
Check Printing Charge		3.15
Foreign Check Processing		2.45
AAZPA Zoo & Aquarium Careers Pamphlet		5.00
	1819.41	1054.78
	-1054.78	
Cash on hand June 30, 1975 (Actual checkbook balance!)	\$764.63	

WE ARE PLEASED TO ANNOUNCE THAT THE AMERICAN ASSOCIATION OF ZOO KEEPERS HEADQUARTERS WILL BE TRANSFERRED TO TOPEKA ABOUT THE FIFTEENTH OF AUGUST. EXECUTIVE SECRETARY RICK STEENBERG HAS ACCEPTED A POSITION AT THE WORLD FAMOUS TOPEKA ZOO. AAZK'S MAILING ADDRESS WILL BE: AMERICAN ASSOCIATION OF ZOO KEEPERS
c/o TOPEKA ZOOLOGICAL PARK
635 GAGE BOULEVARD
TOPEKA, KS 66606

ANIMAL KEEPERS' FORUM FINANCIAL STATEMENT - 2ND QUARTER 1975

Judie Steenberg

Cash on hand 31 March 1975

\$ 541.00

INCOME

Subscriptions - 11 @ \$5.00 ea (1 @ \$4.00)	\$ 54.00
AAZK Memberships - 104 @ \$5.00 ea for AKF	520.00
Total Income	<u>\$574.00</u>

\$ 574.00\$1115.00EXPENSES

Refunds AAZK/AKF duplicates	\$ 70.00
Printing Supplies & Machine use: Machine use - 3 mos @ \$3.00/mo	9.00
Typewriter ribbon & film	3.33
2 Pkgs vinyl stencils	52.80
Mailing labels	13.00
	<u>\$ 79.03</u>

Postage: Miscellaneous stamps (1st class Canada and overseas, New subscribers, correspondence, packages)	\$ 60.52
Bulk Deposit May	27.00
Bulk Deposit June	29.00
Bulk Deposit July	30.00
	<u>\$146.52</u>

Total Expenses

\$295.55\$ 295.55

Cash on Hand 30 June 1975

\$ 819.45

Year to date figures: Cash on hand 31 Dec. 1974	\$ 305.29
Income	1129.00
	<u>\$1434.29</u>

Printing Supplies & Machine Use	\$257.53
Postage	280.57
Office Supplies	6.74
Refunds	70.00
	<u>\$614.84</u>
	<u>\$ 614.84</u>
	<u>\$ 819.45</u>

AAZK/AKF MEMBERSHIP/SUBSCRIPTION FORM

☐ AAZK Membership -- \$10.00 per year. Includes subscription to AKF. Make check or money order payable to: American Association of Zoo Keepers.

☐ Subscription rate for Animal Keepers' Forum is \$5.00 per year (Jan. thru Dec.). make check or money order payable to Animal Keepers' Forum.

Name _____ Send to: AAZK Hq. (or)
 Address _____ Animal Keepers' Forum
 City _____ State _____ 8415 Bacardi Av. W.
 Inver Grove Heights,
 Minnesota 55075
 Zip Code _____

Please note: Computerized labelling requires that all addresses be no more than four (4) lines, limited to twenty (20) letters per line.



AMERICAN ASSOCIATION OF ZOO KEEPERS

THOMAS SCHNEIDER
2500 SANFORD ST.
ALEXANDRIA, VIRG.
22301

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Volume II Number 9 September 1975

RARE ANTELOPE BIRTH by Bob Hoffmann, Milwaukee County Zoo

On the morning of 12 August, at 12:50 a.m., a female Bongo (Boocercus eurycerus) calf was born. The Bongo mother and calf are in excellent condition. The father of the calf is on breeding loan from the Cincinnati Zoo. It was agreed that the first female calf would go to Cincinnati, and the first male would stay in Milwaukee. A detailed manuscript is being prepared for a future article.

FLAMINGO HATCHINGS

Bill Zachariasen of the Milwaukee County Zoo reports a Greater Flamingo hatched on 24 June. The egg was laid on 25 May. It was laid outdoors by an open pond on a three-year old nest. The birds enlarged the nest each year. An egg was laid in the nest last year, but it did not hatch. Another egg was laid in a different nest this year. It, too, did not hatch. The chick, the first flamingo hatched at Milwaukee, is growing rapidly. Bill would welcome correspondence from other zoos which have raised flamingos outdoors in climates similar to Milwaukee's.

Two Caribbean flamingos hatched at the Philadelphia Zoo...one on 14 July, the other on 18 July. It was the zoo's first flamingo hatching in nine years.

The eggs were laid by two separate female birds in mud nests on the planted island of a wading pool. The females and their mates took turns incubating the eggs for approximately 30 days. The parents feed the chicks a regurgitated liquid.

In contrast to the adult flamingos plumage, the chicks have a white down and short, almost straight bills. Their natal down is replaced by a grayish plumage that persists until the second year. Three or four days after hatching, the young are strong and steady enough to leave the nest. Within three weeks, they are able to forage for themselves, although the parents usually care for them until they are able to fly.



"Animal Keepers' Forum" is a non-profit monthly publication distributed to professional zoo keepers independently, and by the American Association of Zoo Keepers as a service to its members. "Animal Keepers' Forum" includes news and official announcements of the American Association of Zoo Keepers, formerly published in "The Keeper".

MILWAUKEE CHAPTER NEWS by Bob Hoffmann, Milwaukee County Zoo

Our guest speaker for July was Dr. Merlin Tuttle, Curator of Mammals, Milwaukee Public Museum. Dr. Tuttle's slide lecture on bats was truly one of our most educational programs to date.

August 11th our chapter held its first Annual Picnic, on the zoo grounds. A most enjoyable evening was had by all who attended.

NEWS FROM THE CALGARY ZOO by Robert Peel, Calgary Chapter AAZK

New Exhibit: A renovated Children's Zoo Complex was officially opened on June 29, 1975. The facilities adhere to the concept of a children's zoo; animal contact and education. The design is western, featuring rustic buildings and wide open spaces. Construction was financed by Calgary Kinsmen and promoted by the cooperation between City Staff and the Calgary Zoological Society.

Long Range Planning: Since May, 1975 the Calgary Zoo has been under the study of Zooplan Associates Inc.. The consulting firm was employed to establish a master plan that will provide a basis for future land development, fund raising, and animal acquisition. Project completion is scheduled for late 1975.

Significant Births and Hatchings: Between May 1, 1975 and July 31, 1975 the following species were successfully bred: 2/0 Dalls Sheep (2/0), 0/1 Stone Sheep (0/1), 0/2 Bighorn Sheep (0/1), 1/1 Muskox, 0/0/1 Newfoundland Caribou (0/0/1), 0/0/2 White Stork (0/0/1), 2/0 Reindeer, 1/1 Sparrow Hawk (1/1), 0/0/2 Sarus Crane (0/0/2), 0/0/2 Demoiselle Crane (0/0/1), 1/0 Timber Wolf (1/0). () indicates the no. surviving to Aug. 1, 1975.

C O N S E R V A T I O NWILDLIFE PROPAGATION PROGRAM New York Zoological Society

The New York Zoological Society has announced the establishment of a wildlife propagation program on St. Catherine's Island off the coast of Georgia. The new Survival Center, made possible by the Edward John Noble Foundation, is dedicated to the study of native wild animals through a long-term scientific research program, and to the propagation of all endangered species for which the island's climate and facilities may be suitable. According to William G. Conway, General Director of the Society, three herds of African antelopes...addax, sable and gemsbok...are already in residence, roaming large, fenced ranges under careful supervision. Although the animal propagation areas are not planned for casual visitors, the Survival Center will play host to scientists and serious students.

The new Center is planned as a cooperative effort. The National Zoological Park has placed a nuclear herd in one of the island's facilities, and other organizations, including the U.S. Department of the Interior and the Philadelphia Zoological Society, are expected to participate.

WORLD WILDLIFE FUND

Grants totaling \$ 127,350.00 for conservation projects were approved by the World Wildlife Fund-U.S. Appeal at its July Board meeting.

The new grants vary widely. In the United States, an analysis of the population dynamics of the southern right whale using a computer model will determine the impact of hunting on this rare, large species. A grant to the Environmental Defence Fund will support legal efforts to protect the U.S. Coastal Wetlands from exploitation. The Xerces Society, concerned with the conservation of butterflies and other arthropoda, will receive assistance. Funding of status surveys on the Orinoco crocodile in Columbia and macaws in Latin American rain forests will provide vital information. The African Cape hunting dog will also be studied.

STAFF TRAINING...ASHOVER STYLE by C.H. Keeling, Worthing, Sussex, England

As a small boy, desperately anxious to learn all I could about animals, I made the following interesting and sobering discovery...I gleaned far more knowledge from an hour stroll around one museum than ever I did in a dozen zoological gardens. The reason was by no means difficult to seek. In the former sort of place, you somehow felt they just knew more about animals...the labels were informative, the staff was nicer and more helpful; but, more important, you distinctly got the impression they really wanted you to get something out of your visit. I vowed that one day I would have a zoological garden which was like a museum, which would help people who shared my enthusiasm for other living things which shared our lovely planet.

Eventually, I and it, did.

The Ashover Zoological Garden, situated in the beautiful Peak of Derbyshire, in north-central England, operated for eighteen years as the only zoo anywhere to be designed as a teaching medium and nothing else. The full story is told in "Ask of the Beasts" by Jill Keeling, published by Blond. The going was always difficult as for some incredible reason by no means clear to me even now, the work of the place earned it the undying enmity of most other zoological gardens, at least as far as this country is concerned. The collection was small - perhaps two hundred specimens although all the vertebrate groups and some invertebrates were represented. They were housed in a way by no means designed to impress, but I think it safe to say that we more than justified keeping them. We tried to ensure that our visitors really got something, shall we say "cerebral", for their admission fee. The system of labelling was accepted (albeit reluctantly) as the finest in the world. Notices about the zoo invited questions about any living thing. There was a public library and reading room (no other British Zoological Garden has yet seen fit to follow suit), a school room, a museum, and a gallery of animal art. We staged one-day and residential weekend courses, evening classes, and operated an extra-mural lecture service to the schools of seventeen counties. Each talk was illustrated with a collection of living specimens.

All this would have been quite impossible, though, without a comprehensive staff-training scheme, as the keeper is the most important person to work in a zoological garden. Such a place might limp along in a fashion without its director, it could get along (perhaps even better) without its P.R.O., but remove the sub-species "keeperensis" and the whole outfit will come to a halt. I remembered, too, how knowledgeable the museum staff used to be, and could see no reason why the same state of affairs should not apply to a living place. One of the first things to be arranged, in 1955, the year of our opening, was a sound staff tuition plan and a very successful one it turned out to be, too.

After the initial interview, the would-be keeper was offered not a post, but a month's probationary period, during which they decided whether or not they liked life with us. During this time we decided whether they were going to make the grade, although as a rule we could tell if they were going to be suitable at the end of the first day. If successful, the new student keeper entered a three year course, during which he or she had a good basic grounding in wild animal husbandry, together with general zoology, dietetics, and elementary veterinary practice. They learned how to do autopsies, keep records and, most important, were trained as guide-lecturers. On the completion of their three year stu-

dentship they were automatically made partners in the concern. The net result was a sense of esprit de corps which I have never seen since in any other zoological garden. Let us face it, in most places the average keeper reaches retiring age without learning much more than where the buckets are kept, how many apples to give this animal and what size piece of meat to give that. I have felt strongly that wild animal husbandry is one of the few professions (and it really is a profession, against a trade or a job) which is both a science and an art. The sooner the casual visitor realizes this the better.

In the early days at Ashover, explanations of the animal's scientific names were not given on the labels so all members of the staff were taught just what these names really meant. Since so many of the public asked what "those funny names" were it was important that the staff be prepared to answer. To the average person *Selenactos thibetanus* might be a stream of expletives in Tamil, but when it is explained that it means "Bear from Tibet with moon-like mark (on the chest)", it starts to make sense. Part of the training scheme was going to other zoological gardens, museums and nature reserves, while through the kind offices of Mynheer Henk Slooyer of Amsterdam, those nearing the end of their studentship spent some time in Holland, looking at collections there, and in Belgium and Germany. It was all as thorough, and as easily assimilated, as we could make it.

Since then another British zoological garden, and extremely well-known one, has launched a staff training scheme, but along quite different lines. As far as I can gather, there is a heavy emphasis on wild animal husbandry, to the detriment of all else. Now, obviously, this is of prime importance in a collection of living animals, but doing this and this alone is to me rather like telling someone how to do a thing, but not why he is doing it. I see little point in teaching someone how to care for, say, an Anoa without also dealing with how it lives in the Celebes, and just why its horns are set back in the way they are, and just why it is small and dark; as he can have little idea of the questions about it to come, he should know when it was first discovered and brought out of its native land, the zoological collections in which it has thrived particularly well and why its small hooves are shaped as they are.

Obviously, three years was inadequate to learn thoroughly about even a small collection like ours, especially as so much general stuff was taught, too. But the idea was an enormous success; the staff was turned out virtually as zoologists, they took great pride in their work, and the public were most happy about the helpful and expert way in which their questions were answered, besides perhaps starting to realise that there was a lot more to a zoological garden than at first met the eye. And if Ashover could have done it, why not any others?

Dear AKF,

The purpose of this letter is to explicate and hopefully head off misunderstandings about the United Animal Keepers (U.A.K.). You may, as individuals or through the August 6th issue of the Christian Science Monitor, already have some knowledge of us. However I would like to submit a fuller and more balanced explanation of our goals and origin.

We came about from an idea of Bob Leemon's, a keeper at the L.A. Zoo and the president of our organization. Future enquiries about the U.A.K. should be sent to: U.A.K., Box 1214, Studio City, Ca. 91604.

Keepers both here in California and elsewhere felt the need for a humane organization composed of animal keepers because we were tired of seeing periodic blasts being taken at our zoos or zoos everywhere by often misinformed, though well-intentioned people while real, often more grievous conditions went unnoticed. Who else but the keeper can pinpoint the source of animal problem whether it be economic, administrative or even structural?

Too many architects have drawn up plans which may be aesthetically pleasing but completely unmaintainable. Too many zoo administrators pay lip service to keeper input and turn away when it is no longer comfortable.

The conditions of animals in zoos are coming under increased scrutiny. This attention will intensify I believe and federal regulation is also forthcoming. I also believe keepers should sit on a regulatory board if it actualizes because keepers should and usually do have a greater understanding of the practical needs of their charges than anyone else.

The Fund for Animals has aided us by using their mailing and office facilities to send out our literature. I have great respect for the Fund and its goals and am not here to make apologies to anyone for the U.A.K.'s association with them. I do believe that the U.A.K. can help humane organizations to correct abuses by focusing on the real sources of a zoo's problems, whether it be lack of a maintenance yard or indifferent politicians so that they are not simply laid on the door of the director or on the zoo staff. Our goal is to work with zoo administration not against it. We want to be agents of progress not scandal. Keepers at the zoo involved would be actively involved in seeking solutions to problems and the weight of the decision to involve public exposure would lie with them.

There is one other topic I would like to deal with in this letter and that is the U.A.K.'s relationship to AAZK. I plainly do not see any conflict between the two. The U.A.K. does not seek a general membership nor intend to challenge AAZK in anyway. We clearly will have a more political and advocacy function. Hopefully the two will compliment and nurture the role of the keeper within the zoo world.

We believe that there is a need for such an organization as the United Animal Keepers and we recognize that the necessary atmosphere for its existence is provided by the pre-existence of AAZK, a more progressive and "team spirit" from zoo management in general, and the dedication of animal keepers everywhere whether or not they are sympathetic to the U.A.K..

Sincerely,
Tony Bila
San Francisco

OF VETERINARIANS AND KEEPERS

PARASITES by Dr. Stuart Porter, Brownsville Zoo, Brownsville, Texas

A parasite is defined as a plant or animal that lives on or within another organism (host) from which it derives sustenance or protection with or without helping or injuring that host. Parasites infest all living things, from plants to insects to fish to mammals. Some parasites spend their whole life on or in a host, while others can live off the host at some point in their life cycle. In some instances, the association between parasite and host is beneficial to both. Termites and all hoofed stock have parasites in their stomachs which enable them to digest the fiber they eat. In most cases, the parasite doesn't injure the host. Without the host, the parasite would not survive. Occasionally, parasites will injure or kill the host. Usually, other factors are involved here - such as the parasite carrying an infectious agent or simply a disease process occurring at the same time which debilitates the host.

All parasites have life cycles. Most have several forms which may require passage through several hosts. For example, an adult parasite living in the intestine of a dog lays eggs which pass out in the feces onto the grass. The egg hatches outside the host and the larva moves onto a blade of grass which is eaten by another dog. The larva enters the intestine, burrows through the wall, enters a blood vessel and migrates to the lung. In the lung, the larva causes some irritation and is coughed up and swallowed. Once again in the intestine, it develops into an adult and lays eggs. Some parasites which live in the blood are carried from animal to animal by mosquitoes, ticks and biting flies. Some of these parasites need to spend part of their life cycle in an insect in order to mature. Some ticks require three hosts in order to reach adulthood.

There are various kinds of parasites. They may infest specific organ-systems in specific animals. Protozoa are single-celled or groups of non-differentiated cells loosely held together. Not all protozoa are parasitic. Protozoa are found primarily in the blood, the liver, and in the digestive tract, though many organs in an animal may be affected. Some protozoa are normal in the digestive tract, especially in hoofed stock. However, diseases such as coccidiosis, malaria, amebiasis, sleeping sickness, toxoplasmosis, babesiasis are all caused by protozoa. Protozoa can be spread by insects-especially flying insects that bite-and by direct contact with the parasite such as by carnivorous or by drinking infested water.

Flatworms such as flukes have suckers which they use to attach to the host. They consist of only one segment. The adults lay eggs in the organs of the host, which then are passed out in the feces, urine, or in the sputum. They usually require several hosts to reach maturity. Fascioliasis is a disease caused by flukes.

Tapeworms are intestinal parasites which attach to the gut mucosa and have segments which contain their reproductive organs. Their eggs are passed in the feces. When these are ingested by a host, they hatch and the larva migrates and forms a large cyst in the tissues. When this host is eaten by another host, the mature tapeworm develops in the new host's gut.

The nematodes are non-segmented parasites with rounded or pointed ends, which inhabit many organ systems. The roundworms of dogs and cats,

hookworms, heartworms, and the strongyles of horses are all included in this group. This is the most common group of parasites with which veterinarians are concerned.

Ticks, mites, lice, fleas, biting flies, and mosquitoes are also parasites. These all live on the host or merely use the host to feed on. They are the main carriers of disease of all the parasites.

Parasites harm hosts in a variety of ways. Some compete with the host for food, causing deficiency syndromes; some irritate the digestive tract; some remove tissues and fluids and cause blood loss; some destroy the host's tissues by migrating through them or growing within them, or by the blockage of ducts and blood vessels (elephantiasis). Some may occlude the lumen of the digestive tract; the immunological response of the host may cause tissue destruction; some also carry viruses, bacteria or other parasites which then harm the host.

Parasites are spread in a multitude of ways-some of which have already been mentioned. They can be spread by direct contact, as by ingestion; they may burrow through the skin; they may crawl through the nose or mouth; they may be carried by dried feces, fomites (combs and brushes), or be passed through the urine or sputum. They may be carried by insects (vectors); or they may be passed by eating infested animals.

As was said earlier, most free living creatures contain parasites. Why, then, are veterinarians so eager to kill them? In a captive situation, the animals are exposed to many stresses. Parasites are a stress as well and, when combined with other stresses, the animal may be overcome and die. Also, young animals are more susceptible to the effects of parasites than older ones. Thus, heavy parasite loads in adults may cause increased mortality in the newborn.

In many cases it is impossible to completely eliminate the parasites. In these cases, we like to just keep the numbers of parasites under control by routine wormings at certain periods. There are many parasite specific drugs on the market. Most are poisons, so indiscriminate worming is not good.

Another way to treat for parasites is to break their life cycle by removing the host from their environment or by eliminating the insect that carries them or by merely removing feces before the animal eats it, lies in it, or licks it. Also, cleaning boots before and after entering an animal's environment may stop the spread of parasites from lot to lot.

Parasites are a grim fact of life which must be dealt with. We can only do this by learning as much as we can about them and by appreciating their destructive potential. Vigilance is essential in the fight against disease.

BLOOD GAS ANALYZER FOR FRANKLIN PARK ZOO Boston Zoological Society

Instrumentation Laboratories in Lexington, Mass. has donated a blood gas analyzer to the Franklin Park Zoo hospital, making the zoo one of two research centers in the entire country for normal blood gas and pH levels for animals. The analyzer is a sophisticated piece of equipment that will enable the hospital staff to set standards for normalcies in blood pH and gas levels for many exotic animals. It will allow the Boston area zoos to provide more complete care for their animals and will be a valuable research asset to zoos across the country

Animalia Nutriology

Dr. Richard S. Patton, Director of Professional Education, Mark Morris Associates, Topeka, KS.

Q. What is the story on vitamin C? How difficult is it to get adequate amounts? How different are requirements from one animal to the next?

A. Vitamin C, or ascorbic acid, received much attention in the popular press recently when Nobel laureate Linus Pauling reported he could lessen cold frequency and severity by taking vitamin C. The medical profession naturally was reluctant to accept this because Pauling's Nobel prize(s) was in physics and he obviously was incapable of objective reasoning in any other science. A subsequent Canadian study showed quite nicely that days missed from work due to colds are fewer for those taking vitamin C.

Vitamin C is a sugar acid (L-xyloascorbic acid) which is one of the most readily oxidized (destroyed) substances isolated from nature, thereby accounting for much of the problems associated with it in zoo nutrition. Its lack in the diet, of course, causes scurvy, with symptoms of tender swollen joints, tiny subcutaneous hemorrhages, poor teeth development, bone disease and poor growth, and retarded wound healing. The vitamin has been proven to function in the formation of hydroxyline, an amino acid found exclusively in connective tissue. Other roles are likely.

The listed requirement for humans is 60 mg./day (adult male). It is known this value contains a wide margin of safety. For most primates, about 60 mg./day is also adequate. There is a chance that the Slow Loris and Tree Shrew can synthesize their own vitamin C. It is commonly believed the dog and cat have no dietary requirement, if healthy. For that matter, man, primates and guinea pigs are presently the only species of animals known to definitely require the vitamin, with 6 mg./day being adequate for most guinea pigs.

Good sources of the vitamin are fresh raw potatoes and other fresh vegetables, especially green leaf types. Citrus fruits contain high concentrations, while meats are very low.

Because of its instability, heating during preparation destroys the vitamin in table foods, canned foods and pet foods (dry or canned), but freezing as a means of preservation can prevent this destruction to some extent. Time alone, however, can deplete the vitamin. A fresh potato contains about 60 mg. of ascorbic acid. In three months this has decreased to 30 mg. and in six months to 20 mg.

About the only nutritional advantage of fresh produce in a zoo diet is the vitamin C content. (I do not preclude that produce has other values such as occupational therapy or ease of acceptance.) In situations where it might be advantageous to discontinue fresh produce, there is a form of vitamin C sold commercially that is greatly improved in its stability and shelf life. (Ethocel Coated Ascorbic Acid, Roche Chemical Division, Nutley, New Jersey 07110. Cost about \$4.00/lb. This would provide one Rhesus monkey his daily requirement for 45 years, or, if you prefer, 45 monkeys for one year.) For those animals requiring it, the daily requirement could simply be added topically to the diet.

(Send questions for Dr. Patton to: AKF Editors, 635 Gage Blvd. Topeka, Ks)

ZOO CONTROL BILL REACHES SENATE by Tom Goldsberry, Portland Zoo, Portland Oregon

Hearings were recently held on Senate Bill 2744, the bill that would create a Federal Zoological Control Board. S. 2744 is essentially the same as H.R. 6631 in that they both would require keepers to be licensed, but would allow no keeper representation on the board.

S. 2744 has revised the makeup of the Board to some extent. In contrast to H.R. 6631 which proposed a 10 member board, S. 2744 proposes a 15 man board composed of 8 zoo industry representatives, 5 government representatives, and 2 representatives from national humane groups. It's all well and good to see 8 zoo representatives being proposed instead of the 5 suggested in H.R. 6631 but it still doesn't alter the basic fact that there would still be no representation of the workaday keeper force.

Also, it would be interesting to know how the \$100.00 amount for the licensing fee was arrived at. Maybe a hundred dollars isn't very much to a legislator making \$42,000 a year plus an expense account plus a myriad of fringe benefits but, to keepers in some parts of the country a \$100.00 is a week's take home pay. I wonder how many of our intrepid solons would be willing to give a week's pay for the privilege of being a politician?

For anyone who thinks that passage of this bill would suddenly unleash a flood of government money, just remember that most of the grants described are not giveaway programs but would require matching funds from local sources.

Interested keepers may write Claiborne Pell, Chairman, Subcommittee on Rules and Administration, U.S. Senate, Washington, D.C. 20510 or John Dingell, Subcommittee on Fisheries and Wildlife, Conservation and the Environment, U.S. House of Representatives, Washington, D.C. 20515.

DATES TO REMEMBER

The 51st National Conference of the American Association of Zoological Parks and Aquariums (AAZPA), Calgary, Alberta, Canada - September 14-18, '75.

REMINDER

The mailing addresses for both AAZK and AKF have been changed to:
635 Gage Blvd., Topeka, KS 66606

All articles for the AKF and The Keeper should be mailed to the Editors at the above address as well as any subscriptions and inquiries.

AAZK correspondence should be mailed to the attention of Rick Steenberg

PROCEEDINGS AVAILABLE

The Proceedings of the Symposium on Endangered and Threatened Species of North America are available from the Wolf Sanctuary Office for \$4.00, P.O. Box 16204, St. Louis, MO 63105.

DEADLINE FOR THE OCTOBER AKF IS 20 SEPTEMBER 1975

The views of the Authors may not reflect those of the AKF Editorial Staff.



AMERICAN ASSOCIATION OF ZOO KEEPERS

THOMAS SCHNEIDER
2500 SAKFORD ST.
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ANIMAL KEEPERS' FORUM

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ANIMAL KEEPERS' FORUM

DEDICATED TO PROFESSIONAL ANIMAL CARE.

Volume II, Number 10 October 1975

TOPEKA ZOO NEWS by Vicky LaRue, Topeka Zoological Park

Topeka Zoo has received a female echidna from the Como Zoo in St. Paul, Minnesota. It was matched through ISIS with Topeka's lone male echidna. The pair will live in a specially constructed unit in the Zoo's Australian building. The unit, remodeled with funds donated by the Topeka Fraternal Order of Police, will have a dirt floor, for burrowing, and a special light shelter to protect the pair from bright sunlight and excessive noise. Graphics will be used to explain the program to the public, though limited viewing of the animals will be allowed. Due to the rarity of this species in captivity, every attempt will be made to provide the pair with conditions favorable for breeding.

The Topeka Zoological Park Master Plan is nearing completion. Throughout the summer, discussions and meetings have been held to help determine the direction of development for the Topeka Zoo. Full utilization of the relatively small area of the Zoo is a primary concern. Currently, funds have been allocated and plans have been drawn up for an animal health facility, with construction scheduled to begin this fall.

NEWS FROM THE SAN FRANCISCO ZOO by Tony Bila, San Francisco Zoo

The San Francisco Zoo's group of Lowland Gorillas (1.3) are now successfully raising two young in a social group. Our musk ox herd continues to be successful with two calves being raised by their dams.

INFORMATION NEEDED ON THE TRIMMING OF HOOF STOCK

Would like experiences concerning the type of drugs, equipment used and the type of hoof stock that was trimmed. Would especially like hearing from anyone associated with the Farrier Profession and who is currently working with exotic animals. Please forward all responses to: Margie A. Moore, c/o Gladys Porter Zoo, 500 Ringold St., Brownsville, TX 78520.



"Animal Keepers' Forum" is a non-profit monthly publication distributed to professional zoo keepers independently, and by the American Association of Zoo Keepers as a service to its members. "Animal Keepers' Forum" includes news and official announcements of the American Association of Zoo Keepers, formerly published in "The Keeper".



AMERICAN ASSOCIATION OF ZOO KEEPERS

635 Gage Boulevard
Topeka, Kansas 66606

AAZK SHOULDER PATCHES

We've recently received another shipment of shoulder patches at AAZK Headquarters. They are available for \$1.00 per patch, postage paid.

AAZK MOVE COMPLETED

AAZK Headquarters has completed its move to the Heartland of America. Please address all correspondence to AAZK, 635 Gage Blvd., Topeka, KS 66606. All correspondence to the ANIMAL KEEPERS' FORUM should also be addressed to 635 Gage Blvd., Topeka, KS 66606.

AAZK PARTICIPATES IN BEAN AWARDS

The American Association of Zoo Keepers and the American Association of Zoological Parks and Aquariums have announced the granting of Certificates of Merit to those Keepers who were involved in the care of the animals for which Bean Awards were presented. They are as follows:

Debbie Downs and Pam Osten, Lincoln Park Zoo, Chicago, LaPlata three-banded armadillo

C.J. Bardsley and R. Edington, Bronx Zoo, New York, North Pacific murre

Paul W. Barkman, Sacramento Zoo, Sacramento, Fiji Island iguana.

Our congratulations to all these people. They exhibit proof that it's the Keeper who brings the whole thing together.

AAZK ELECTION UPDATE

By the time you receive this AKF it was already too late to cast your ballot in one of the more important elections AAZK has had. Election ballots must have been postmarked no later than September 30th. We certainly hope you participated in large numbers. Your November ANIMAL KEEPERS' FORUM should contain an announcement of the newly-elected Board Members.

AAZK MEMBERSHIP LISTS

Quite a furor has been raised recently, concerning mailing lists and their use by outside organizations. AAZK does not, and does not propose to, allow the use of our membership lists by or on behalf of any organization other than AAZK.

DEWEY GARVEY MOVIN' ON

We are happy to note that Dewey Garvey, long-time active member of AAZK, has left Brookfield Zoo to accept the position of Director of Zoo Marketing with Central Nebraska Packing Company. Chairman of the Tri-Zoo Conference Committee, Inter-Association Liaison Committee member and member of the AAZK Board of Directors, we will miss Dewey's influence but wish him all the best in his new endeavor. Congratulations, Dewey.

THE KEEPER IS COMING.....SOON!

THE KEEPER, an annual journal of articles pertaining to the management of wild animals in captivity is in the works. A sufficient number of articles has been received and are being edited at this time. Target date for mailing to AAZK and AKF members and subscribers is 15 November 1975.

THE KEEPER'S ROLE IN EDUCATION by Pat Sammarco, Lincoln Park Zoo, Chicago

Zoo keeping as a profession, rather than a job, holds responsibilities worthy of dedicated effort. The animals in our care are our primary concern, but not far behind them is our responsibility to the public. The number one purpose of the zoo should be public education. Conservation and research could be better achieved in the wild, or in artificial wildlife preserves, without the public audience.

Because the public needs watching, to protect them and our animals from each other, they are often the greatest sources of aggravation for a Keeper, who would rather be at peace observing natural animal behavior, getting a special project done, or just working the run. Nevertheless, our necessary people-watching affords us personal contact with those who are interested in animals. We have the opportunity, and the responsibility, to help people realize the need for respecting animals as a part of our ecosystem. Besides informing a person about the natural history of the animals, and the Zoo's philosophy, we can share the personalities of the animals and make their trip more enjoyable and enlightening.

Besides personal contact, a Keeper can educate the public by the way a cage is set up. Perhaps a totally natural setting is impossible, but providing climbing, hiding, basking and romping areas for the animals teaches the public some important aspects about their behavior. When I set up a cage, I try to meet the animals' needs, while giving the public as much viewing opportunity as possible. A secure hiding place can be faced just enough towards the front of the cage to make a sleeping animal visible to the public. A cage may be made open or dense while allowing for observation, and can indicate the type of natural area an animal would call home, without the absolute accuracy that is nearly impossible to achieve. A cage can be a woods, desert or rainforest, without the real native plants or rocks, just some Keeper ingenuity.

Information signs are usually out of the Keepers' hands, but notes explaining special circumstances should be added whenever possible. Notes that an animal is temporarily off exhibit, an exhibit is being renovated, or that an area is closed due to a birth, etc., help people understand the mechanics of a zoo, and keep them from being frustrated or imagining that something terrible has happened. The details of every event can not always be made public, but some "inside information", explanation, or request for quiet, helps people understand, and feel good about what is happening.

Notes on special animal behavior or conditions are of interest to people, and again helps them feel good about the zoo, and helps them learn. I like to see signs indicating the birth dates of babies, and as much growing up information as possible. Included would be date of birth, approximate weaning time, special diet for babies and/or mother, growth rate, color changes, and age for full growth or maturity, etc. People are attracted to babies and want to learn about them; we should not pass up this chance to pass on what we know. People who didn't care much for snakes would stand and study the King-snake eggs we had on exhibit for a couple weeks before and after hatching. Special behavior should also be explained, such as counting displays, seasonal color changes or behavior changes, and shedding and molting. In the Reptile house I made a half dozen signs explaining snake shedding cycles and put them up when a snake is "blind". Explaining a "blue eyed" snake attracts attention, and helps people understand a part of being a snake. Signs indicating a new arrival, a specially nervous animal or one with special needs or limited diet (especially in zoos where feeding is allowed) help keep the public aware of when their special behavior is required. I have seen one visitor tell another to stop feeding an animal because of a sign.

A Keeper's personal touch in helping people learn about animals is appreciated more than one will ever realize. People seem oblivious to everything while at the zoo, but will return months or years later remembering some special exhibit or a detail they learned on the last trip. They will ask about a certain animal that was new or ill, or will just feel comfortable enough in the zoo to talk with a Keeper and feel welcome.

In a zoo, the animals may be the ambassadors of their kind, but we Keepers are their interpreters. We have a responsibility to help people understand and appreciate animal life. If we really work at educating the public, perhaps people will need less watching, and we will be able to spend more time on our runs, observing natural behavior and getting special projects done.

A PUBLIC APOLOGY TO DALLAS ZOO FROM MARVIN L. JONES

In the fall of 1973 while visiting Washington, D.C., I heard a talk by a well known zoo personality on the subject of conservation in captivity. During the course of the talk it was mentioned that a Texas zoo with a large reptile collection had been responsible for the decimation of many specimens of a rare form of rattlesnake by abetting their capture in a remote portion of its range. The zoo was not named nor was the species of rattlesnake.

Later in my visit in talking with other individuals it was mentioned that a large group had been surprised while searching for the animals on a lonely mesa in the southwest, and that bulldozers in fact were being used to raise boulders to uncover as many specimens as possible. I was told that the zoo involved was Dallas. Later during my travels north and west of Washington to zoos, I casually mentioned this to a few close friends who apparently could not wait to get it on the zoo grapevine and in re-telling it enlarged upon the story.

I was later apprised of the damage my casual comments had caused and attempted to get in writing confirmation of the talks I had in Washington with both the zoo personality and the other individuals. All have been totally unwilling to do this, so it appears that Marvin Jones has made up a tall tale, which I can assure you was not the case. However, I am very sorry for any problems this may have caused, and would like at this time to publicly apologize both to Larry Calvin Director of the Dallas Zoo, to Jim Murphy of the Herpetology Department of the Dallas Zoo and anyone else involved.

The species involved it has been revealed was Crotalus willardi. Having been given the full facts behind the collection and the disposition of any specimens of this species at the Dallas Zoo let me say that the Dallas Zoo is not the zoo alluded to, and has never captured any specimens of this species in the manner described to me in 1973; no habitat has ever been destroyed by any of the Dallas Zoo staff in a search for this species; all C. willardi in the Dallas Zoo collection are with full documentation and have been or will be placed in a systematic collection on death such as the University of Kansas; and that no C. willardi have been sold or traded from the Dallas Zoo.

Again allow me to state my regret that any comments I may have made have caused problems by individuals or organizations to the Dallas staff. I regret this incident very much as I am aware of the damage to my own credibility and honesty. It may serve as a lesson to all of us who hear such comments at talks or meetings or discuss them with colleagues without checking to verify the complete honesty and truth behind the comment. The Zoo grapevine is the most vicious means of passing on such items.

SOME RUMINATIONS ON BRITISH ZOOLOGICAL GARDENS, PART I by C.H. Keeling
Worthing, England

Our country has almost one hundred zoological collections of one kind or another, which is perhaps slightly surprising when it is borne in mind that it is only about half the size of California, or the whole of Wyoming, if that makes a clearer picture.

They range from the excellent Zoological Society of London in Regent's Park to an institution which labelled its pot-bellied pigs as "Pygmy Hippos", its Celebes Black Apes as "Miniature Gorillas" and its Monitor Lizards as "Baby Dragons"! Make no mistake about it, I know of no public collection where the denizens are in any way badly treated, but far too many British zoological gardens are operated without any imagination whatsoever by people who have drifted into the profession after spending half their lives doing something quite different. To me, such places must necessarily be bad ones. At this stage I feel I ought to make it clear that what I look for in a zoological garden (not "zoo", please; you would not call a botanical garden a "bott" or a hospital a "hosp") is not what most of my colleagues seek. To most people a "good" collection is one with an impressive collection well kept and attractively housed. However, I am concerned with much simpler, and cheaper things - the all-round knowledge of the director, the way in which the staff are trained, the places' longevity records, the informativeness of the labels, the comprehensiveness of the indexing system, the educational and scientific work done, the helpfulness of staff to inquiring visitors - in other words, whether or not the place justifies its existence! It will be years before I forget the remark made to me by the woman director of a zoological garden in Warwickshire, England: "I don't know anything about animals, but, ooh, I do love 'em". In all seriousness, can you imagine a financier saying "I don't know anything about money, but, gosh, does it fascinate me"? When I owned the Ashover Zoological Garden I was often phoned by other directors who wanted information about new arrivals of species of which they knew nothing, or of whose existence they had been unaware. To me this is comparable with a bank manager saying to another "I have just heard of some things called pesetas - what on earth are they?", or a doctor asking a colleague what a laparotomy was.

Having made this not irrelevant point, let me take you to a few places which I think will interest you...

On the south coast of the lovely county of Devonshire lies the town of Paignton which boasts one of the best zoological gardens I have ever visited. There is an excellent and comprehensive collection, an enthusiastic staff, a vigorous educational programme and good longevity records. Unfortunately, or perhaps significantly, this place comes in for a lot of criticism, mainly from people who think the standards of wild animal husbandry could be improved, but the animals look perfectly all right to me. On the whole I have nothing but praise for this charming and well-wooded spot.

I can say almost the same about the famous Bristol Zoological Gardens - a well established institution over a century old where most of the animals are housed in the old-type cages and houses in which most species do so well and live so long. Again there is a good collection, experienced staff with long-service records, a dedicated director and, for those who follow fashion, a good breeding record. Unfortunately, the labelling system is among the most primitive I have ever seen, and the visitor is left wondering whether the species he has just inspected lives five years or a century, has two or twenty-two young, lives on mountain tops or by the sea, eats carrion or fruit cake or has a gestation period of a month or a year. It is unfortunate, too, that Bristol admits it is not interested in establishing an educational programme, as attention to details of this kind would result in a truly wonderful place.

The Marwell Zoological Park in Hampshire (an area where so many G.I's were stationed during the war) is a truly magnificent place, which provides much food for thought in more ways than one. Here, in rolling parkland, are herds of Grevy's Zebras, Giraffes, Scimitar-horned Oryx, Wild Horses and Waterbuck. Siberian Tigers and other cats, large birds and waterfowl abound here, and the place just exudes professionalism, as indeed it should as the owner is a wealthy man. But often I look over this sort of place and wonder...

(Part II of this article will be printed next month.)

NATURE'S HARSHNESS SEEN IN PUERTO RICAN PARROT'S FIGHT FOR SURVIVAL

The survival of America's most critically endangered bird, the Puerto Rican parrot, may depend upon a new program to renovate and protect its nesting sites, the Interior Department's U.S. Fish and Wildlife Service said today announcing the appointment of a recovery team to expand efforts already begun to save the bird from extinction.

Less than 20 of the emerald green, foot-long parrots are hanging on in a wet, windy sanctuary in the Luquillo Mountains of eastern Puerto Rico, a fragment of their former range. Here, they found refuge from the shooting, taking of young birds from their nests for pets, and relentless clearing of forests for agriculture which squeezed them out of the lowlands of the island. A critical shortage of nesting sites in hollow trees, combined with fierce competition from the exploding population of another bird, the pearly-eyed thrasher, continues to push the parrots towards extinction.

(U.S. Dept. of the Interior News Release - 22 September 1975)

NATIONAL WHALE SYMPOSIUM

On November 8 through 12, 1975 the National Whale Symposium will be held at the Indiana University in Bloomington, Indiana. The symposium is a multi-disciplinary public conference devoted to the study and celebration of whales, dolphins and porpoises. Subjects to be discussed include: animal communication and sensory input, ethology, physiology, whales in captivity, the Marine Mammal Protection Act, rare and endangered species, health of the oceans and much more.

For additional information, including details about registration and accommodations, write:

The National Whale Symposium
605 South Fess Avenue, No. 3
Bloomington, Indiana 47401
Telephone (812) 339-1484

OUR MISTAKE

If you haven't figured it out by now the last AKF you received was the September issue (Volume II, Number 9). We inadvertently omitted the date-line last month.

DEADLINE FOR THE NOVEMBER AKF IS 20 OCTOBER 1975

The views of the Authors may not reflect those of the AKF Editorial Staff.

ANIMALIA NUTRIOLGY Dr. Richard S. Patton, Director of Professional Education, Mark Morris Associates, Topeka, KS.

Question: Our diet for rufous hummingbirds is a mixture of vitamin enriched liquid honey in a ratio of 1:6 with distilled water (with a separate feeding of *Drosophila* as a protein source). How fast will this solution ferment to a point that it is detrimental to the birds?

Answer: I don't know. Rate of fermentation is a function of temperature and, of course, strain of microbe. Pure honey as you know will take forever to spoil. The sugars bind all the water and any microbes in the environment simply die of thirst. If you find this solution fermenting, you can prolong its life by decreasing the amount of water used, if viscosity permits. Assuming reasonable sanitation, this solution should be unfermented for 24 hrs.

Question: Certain foods are known to adversely affect vitamin metabolism. Two examples are raw egg white and raw herring. Are there any other foods that have these characteristics? How much of a given item is dangerous? Are certain species exempt? Can the effect be counteracted by giving extra vitamins?

Answer: Your question (or should I say questions) is about a very intriguing topic, but of such a nature that I can't answer it fully in the space allotted. Another example - raw soybeans contain an enzyme, soyin, which is harmful to trypsin. The harmful effect of these enzymes often can be lessened by providing more of the ingredient they destroy. The reason for this is that in destroying the ingredient they are destroyed themselves. ("Destroyed" is not the most accurate word, but conveys the concept.)

On your two examples, and in mine, the culprit is an enzyme, which is itself destroyed by cooking, an effective remedy but not always practical.

Question: Should all mammals (including the many diverse species of "small" mammals) have free access to salt or salt/mineral blocks at all times?

Answer: If possible, it is highly unlikely to do any harm. It is usually impractical to provide a salt block for every creature in the zoo. The objective should be to get adequate salt and minerals into the animal. All mammals have a beautiful ability to conserve salt when necessary, and to a large extent trace minerals as well. (Salt water mammals invariably are faced with the problem of excreting salt, for obvious reasons.) If it is known that inadequate salt is being provided, or even suspected, a piece of salt in the exhibit would do no harm. As you know, salt is the sort of thing that a few licks taste good, but several mouthfuls could never be consumed. For most mammals, .25% dietary salt is quite adequate and incorporation in the diet is the method of choice.

Question: Would you please discuss the advantages and disadvantages of alfalfa versus Timothy for the feeding of ungulates?

Answer: The big difference between the two hays is protein content. Alfalfa is usually about 15% and can go as high as 22%. Timothy is usually about 6% to 10% and can be as low as 3%. The level is a function of the age of the plant. As the plant matures the moisture decreases and the fiber increases, with a slight drop in protein. Later cuttings tend to be lushe~~r~~ and higher in protein. Of course, alfalfa is a nitrogen fixing plant (legume), using rhizomes on its

roots to incorporate soil nitrogen into the plant. Timothy is a grass and does not have this ability.

As a general rule, alfalfa is preferred by hoof stock largely on the basis of palatability. Browsers tend to take to lower quality forage a bit more easily than grazers, but again, this is one of those damnable generalizations. The critical issue is total dietary protein. If an adequate concentrate is fed, the main function of any hay need be nothing more than providing the fiber that the animal needs to function properly. In monogastric ungulates (e.g., swine) alfalfa is preferred because of their relative inability to digest fiber. Use alfalfa only in situations where adequate protein intake is in doubt. A mature, non-gravid ruminant needs 10% dietary protein.

MILWAUKEE CHAPTER NEWS by Bob Hoffmann, Milwaukee County Zoo

Our September meeting was a field trip to the Schlitz Audubon Center. The nature center is on a 185 acre tract of deep woodlands, grassy fields, and a half mile of unblemished Lake Michigan Shoreline. Abundant wildlife such as deer, raccoons, possums, foxes, squirrels, woodchucks, skunks; lake shore, grassland and woodland birds and a host of other native and visiting denizens appear in their natural surroundings only 10 miles north of downtown Milwaukee.

Rick Ashley one of two paid naturalists gave an extremely informative tour of some of the nine miles of foot trails, behind the scenes of the interpretive building, plus a slide presentation.

LETTER TO THE EDITORS

Dear AKF:

Thank you for your balanced editing of my two letters. What was lost in continuity was made up for by getting the main points across.

We are also interested in what you, as individual Keepers, felt about the letters and the United Animal Keepers (UAK).

Thank you,

Tony Bila
1231 - 44 Ave.
San Francisco, CA 94122

EDITOR'S COMMENT

In all issues of AKF we state that the articles published do not necessarily reflect the opinions of the Staff. However, we hereby go on record that we do not support the United Animal Keepers (UAK). Their ideals are commendable, but we cannot condone their proposed methods nor their affiliation with the Fund for Animals.

We would also like to take this opportunity to say that in his letters, Tony Bila did state "The mailing list attached to the introductory letter is just that, a mailing list, and should not be construed by anyone as a membership list".

DIPLOMACY AND RESEARCH: HOPE FOR WORLD'S MARINE MAMMALS

Two of man's most highly developed skills, international diplomacy and space satellite technology, were among the tools employed last year to carve a more secure place for marine mammals in the world's environments.

As a result, the outlook for polar bears, walruses, sea otters, manatees and dugongs remains hopeful. From Alaska to Timbuktu, State, Federal and international organizations combined efforts in an exceptional spirit of cooperation to protect these valuable resources and ensure their survival. Some of the species are already endangered; others face the potential threat of habitat destruction caused by man's development of land and energy resources.

The status of the world's marine mammals was reported to Congress recently by Interior's U.S. Fish and Wildlife Service. The report is required annually by the Marine Mammal Protection Act of 1972 which makes the Interior Department responsible for walruses, polar bears, sea otters, manatees and dugongs; and the National Marine Fisheries Service of the Department of Commerce responsible for whales, porpoises, seals and sea lions. The major objective of the Act is to ensure the continued survival of these animals in their habitats through international negotiations, research and cooperation with State agencies.

(U.S. Dept. of the Interior New Release - 8 September 1975)

AAZK and AKF T-shirts available - Avoid the Rush, Order NOW!

T-shirts with the AAZK logo and the AKF logo are available thru the Keepers at the Sedgwick County Zoo in Wichita, Kansas. AAZK shirts can be printed in blue or white ink and AKF shirts are available in black ink only. Shirt colors are dark blue, light blue, gold, white and olive green at a cost of \$4.50 each.

\$1.00 of the AKF shirts will be contributed to the International Species Inventory System (ISIS). And \$1.00 of the AAZK T-shirts will go to AAZK. Orders and checks should be sent to the attention of Gail Winter, AAZK Chapter, Sedgwick County Zoo, 5555 Zoo Boulevard, Wichita, Kansas 67212. Be sure to state size.



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VOLUME II, NUMBER 11

NOVEMBER 1975



First Anniversary Issue

november 1974 - november 1975



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AMERICAN ASSOCIATION OF ZOO KEEPERS

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Topeka, Kansas 66606

AAZK ELECTION '75 RESULTS

We are pleased to announce the results of the recent balloting for election to the Board of Directors of the American Association of Zoo Keepers. Tom Schneider, National Zoo, kindly consented to act as Election Referee in place of Bela Demeter, who chose to run for election to the Board. Tom has supplied us with figures that show the following members have been elected to four year terms, with terms commencing on January 1 '76.

Chris LaRue, Topeka Zoo, Topeka, Kansas

Bela Demeter, National Zoo, Washington, DC

*Ed Roberts, Stone Memorial Zoo, Boston, Massachusetts

*Incumbent reelected.

Ballots and official figures will be available at headquarters for any member who wishes to study them.

Unfortunately, everyone who showed a willingness to run could not win. We hope those who did not succeed will not be discouraged, but will try again. Meanwhile, sincere congratulations to those who were elected to the Board.

THIRD QUARTER TREASURER'S REPORT, AMERICAN ASSOCIATION OF ZOO KEEPERS

<u>ITEM</u>	<u>CREDIT</u>	<u>DEBIT</u>
Cash on hand (6-30-75)	\$676.41	
Income	768.73	
Postage		\$ 53.10
Animal Keepers' Forum Account		85.00
Refunds (prorated dues, new memberships)		185.00
Patches		308.00
Printing Costs		14.35
Office Supplies		38.19
Membership Cards		14.56
	1533.36	698.20
	<u>-698.20</u>	
Cash on hand September 30, 1975	\$835.17	

AN EDITORIAL (CASTIGATION) by Rick Steenberg, Executive Secretary

The results of this year's election appear above, on this page. It is great that we could have an election and members could choose their Board members. We are pleased for the successful candidates and sympathize with the not-so-successful.

However, we are not pleased with the membership. In an organization of over 500 members, we could muster but 100 ballots, 17 of which had to be invalidated because the voter was not identified on the outside of the balloting envelope as required. This means a mere 83 members determined the results of the election. Where the Hell were you other 417 plus members? For shame! It would be so much more encouraging if you cared. Meanwhile, whoever you loyal 100 are, you are the only ones who can rightfully bitch about how things are run in your organization, the American Association of Zoo Keepers.

SOME RUMINATIONS ON BRITISH ZOOLOGICAL GARDENS (PART II) by C.H. Keeling
Worthing, England

Over the last two or three years members of my Junior Zoological Societies have assisted me in carrying out surveys on what the public seek when they visit a zoological collection: the man in the street today is better educated than he was twenty years ago, and we have found many signs that when he visits such a place he is getting a little tired of the usual brew of ungulates and big Cats and Cranes that most places now offer him. In a way it is getting almost boring to visit a new zoological garden for the aficionado, as he knows just what hardy perennials he is going to see before he gets through the gate. A perfect example of this is to be found at Blackpool...

This large holiday resort in the north of England has a fine new zoological garden of a type which is a rarity in this country, in that it is municipally owned and operated. When they were stocking the place they were by no means short of money, but one might be excused for thinking they had deliberately followed a policy of something like "Don't let's have any species anyone else hasn't got. Let's be like every other place". So in they came - the Asiatic Elephants and the Lions, the Anthropoid Apes and the Flamingoes, the Wildebeestes and the Kangaroos, the Ostriches and the Black Swans. Amphibians, Mustelids, invertebrates - what are they? To be fair, though, there are odd exceptions to every rule, as I always tell my audiences at lectures, and recently Blackpool obtained the first Chamois to be seen in this country for many years.

Edinburgh Zoological Park is another excellent institution with a comprehensive collection, good staff, enlightened teaching programme with no less than three full-time education officers and, for once, a really good labelling system. Why is it though that whenever I particularly like and admire a zoological collection it always seems to come in for a lot of criticism?!?!

Over the last three decades I have noticed a vast difference manifest itself in the wild animal keepers of this country: to be perfectly frank, for all I know this state of affairs applies to the States as well, but as I am ashamed to say I have yet to visit a zoological institution on the far side of the Atlantic what I have to say along these lines concerns British keepers only. Up to the early nineteen fifties the average keeper was a middle-aged man who had given long and faithful service to the place which employed him; he was devoted to his charges, drew from a fund of experience, but on the whole was concerned only with animals in confinement - natural history as such did not seem greatly to interest him. How different is the situation today in nine cases out of ten. The average keeper is more inclined to be interested in zoology as such, and keen indeed to further his knowledge about the way in which animals live in the wild, but he is so young - in his late teens or early twenties as often as not; "bits of boys" would be the term my mother would use to describe the staff of many zoological gardens - and he is so no-madic, too. My own observations show that in a great many cases such a person spends rather under three years at any one place before moving on to grace the scene at another - inevitably and invariably relating tales of appalling neglect or waste or incompetence at the previous one. Jersey, Dudley, Flamingo Park, Chester, Twycross, Windsor and Woburn are places particularly popular with these roamers, and it could be significant that with the exception of the first-named institution I am enamoured with none of them. In an incredible number of cases our hero has left the profession for good by the time he has reached the age of thirty.

Most zoological gardens, with the exceptions of London, Bristol and Edinburgh have high incidences of staff wastage and turnover, for reasons which are not immediately clear. One possible explanation could be the rather unfortunate fact that wild animal husbandry is rather inclined to attract "characters", weirdies, oddbods - call them what you will - and the lack of real staff training schemes does not help matters either. London offers a good one, but the whole emphasis is on the husbandry side and nothing else, which is rather on a par with training hospital staff in the finer points of caring for the needs and day to day comfort of the patients without touching upon matters medical.

This is a small country very well endowed with zoological gardens, and anyone coming here with the intention of visiting as many of them as possible could spend a most interesting and enjoyable fortnight or so. Why not try Whipsnade with its five hundred acres and which breeds Cheetas as though they were domestic Rabbits, although you might find too heavy an emphasis on ungulates there, or the magnificent bird garden at Grendon Underwood less than an hour's drive away, where all the Cranes, with the exception of the Whooping, are represented? (Again, its amazing what you can do when you are a millionaire!) You could try the Cotswold Wildlife Park, where the mammal collection ranges from White Rhinos to Common Pandas, and although the guide book to the Cricket St. Thomas Wildlife Park contains an almost unbelievable number of errors the well kept collection there is well worth visiting. If any readers who are contemplating a visit here need any help they have only to contact me in advance (the Editor has my address) and I shall be delighted to assist them in any way possible.

THE SECOND WORLD CONFERENCE ON BREEDING ENDANGERED SPECIES IN CAPTIVITY

The Zoological Society of London and the Fauna Preservation Society are sponsoring this second conference in the series to be held at the London Zoo, July 6-8, 1976. The proceedings will be published in a special section of Volume 17 of the International Zoo Yearbook. The conference aims to establish clear scientific patterns of the basic principles involved in encouraging endangered species to breed in zoos and wildlife parks. More information may be obtained from the Conference Secretary, Dr. Michael Brambell, The Zoological Society of London, Regents Park, London, NW1 4RY, England.

ZOOMOBILE by Karl Scheibengraber, Milwaukee County Zoo

Three "Zoomobile" tour guides at the Milwaukee County Zoo have been accepted as associate members by the local chapter of AAZK. The guides, whose names are Karl Scheibengraber, Neil Browning and Mary Tiernan, are using their memberships to foster the transfer of information to the zoo-going public. Participation in the excellent educational programs sponsored by the Milwaukee Chapter (field trips to other zoos, lectures by animal experts, etc.) has already lent an extra air of expertise and authority to their thirty minute zoo presentations. The direct AAZK "link" between zoo keepers and zoo guides is yielding additional benefits in terms of feedback between various zoo departments and all those concerned with disseminating information to the public. By recruiting from the Zoomobile staff, the Milwaukee Chapter hopes to generate a nation-wide trend of awareness and association between individuals who deliver lectures and running commentaries at large metropolitan zoos.

CONSERVATION

by Ron Kaufman, Topeka Zoo

The days since release of the October AKF have seen a tremendous number of regulations, proposals and actions flow from Washington. From the National Wildlife Federation comes the following report:

Questions about delays of the Federal Government in protecting endangered species dominated testimony at the Subcommittee on Fisheries and Wildlife Conservation and the Environment, House Committee on Merchant Marine and Fisheries, on October 6 concluded oversight hearings into implementation of the Endangered Species Act of 1973.

Rep. Robert L. Leggett (Calif.), Chairman, followed the unusual procedure of allowing people in the audience to join subcommittee members in posing questions to the witnesses from the Departments of the Interior and Commerce. Representing the Interior Department was Fish and Wildlife Service Director Lynn A. Greenwalt, Associate Director Keith Schreiner, and several aides. Representing the Commerce Department were National Marine Fisheries Service Deputy Director Jack W. Gehringer and Ray Hubley. The interrogation came from an 18-page sheaf of questions developed by the Subcommittee staff.

Several questions were directed toward the length of time required for species to be listed as "endangered" or "threatened," and in securing permits for handling endangered or threatened species. From the questioning, some persons obviously disagree with the Interior priorities and methods and the procedures for identifying critical habitat, despite acknowledged shortages in funding and personnel. Attention also was given to ways of encouraging state agencies to enter into cooperative agreements.

The bulk of the witnesses were affiliated with profit and nonprofit zoological organizations. Robert O. Wagner, American Association of Zoological Parks and Aquariums, cited delays in the adoption of regulations and processing of permits as the major problems his group encountered with Interior's administration of the Act. Similar testimony was given by others. Gerald Lentz, manager of Busch Gardens zoological operations in Tampa, Florida, spoke for many of the witnesses when he stated that, "We do not wish to have the Endangered Species Law retracted but we do wish to be allowed freedom to buy, sell, trade, donate, etc. any animal in zoological collections. . . . We believe the present Endangered Species Act is too restrictive for the proper management of endangered species in captivity." . . .

During the same week, on October 10, regulations prohibiting the importation of non-human primates for sale as pets became effective. The Department of Health, Education and Welfare Center for Disease Control issued the regulations because officials consider these animals a source of infectious disease for people who come into contact with them. Such diseases include hepatitis, tuberculosis and parasitic infections. The importation of non-human primates for scientific, educational or exhibition purposes is not prohibited.

A series of proposed additions to the Endangered Species List began on September 19, when USDI proposed the addition of 216 species of plants and animals. The action will supplement existing international regulatory mechanisms. The 216 species are those listed as "critical" by the Convention on International Trade in Endangered Species of Wild Flora and Fauna, ratified by the U.S. and entered into force in July. The list includes many species currently cared for in American zoos, such as: Asian elephant, Bactrian camel, chamois, siamangs, gibbons, jaguarundi, sable antelope, Harpy eagle, dwarf crocodile and many more.

Members are encouraged to consult the September 19, edition of the Federal Register for more details.

One week later, on September 26, USDI adopted the proposed reclassification of the American Alligator, removing it from the endangered list in three areas of Louisiana. The action itself was not startling, but the regulation carried with it an interesting new development. USDI has included a new category - "captive, self-sustaining populations." Under the new category, captive, self-sustaining populations of a species in the U.S., which no longer constitutes a drain on wild populations, may be reclassified as threatened, even though the species is endangered in the wild. Supposedly then, under "simplified" procedures, a special permit could be obtained to move the species in interstate commerce. The new rules merely establish the framework for the concept, as no species is yet termed as captive, self-sustaining.

On September 28, USDI officially classified the American crocodile as an endangered species. No small wonder - only 10 to 20 breeding females are known to exist in the wild! The action also lists the peninsular pronghorn antelope, the Hawaii creeper, the Po'o uli (a newly discovered bird species in Hawaii), and Newell's manx shearwater as endangered. Other species have since been proposed for the endangered list, most of little interest in captive collections.

One final piece of work will serve to close this article - the two previously introduced House bills: H.R. 4030 (Rep. Whitehurst) to establish a Federal Zoo and Aquarium Board and H.R. 6631 (Rep. Dingle) to establish a Federal Zoological Control Board, are still in committee. You may recall that H.R. 6631 is the bill which seeks to establish education and licensing standards for most zoo staff members. Yet another bill has been introduced by Rep. Derwinski. H.R. 4373 would create a National Zoo and Aquarium Corporation.

ZOO HATCHES RARE GIANT TORTOISE

The Philadelphia Zoo has become the sixth institution to achieve the successful hatching of a rare Galapagos tortoise egg.

Curator of Reptiles J. Kevin Bowler said the egg was the only one in a clutch of nine to hatch on September 23. All nine eggs were laid on March 5 in a sandy area of the Galapagos Island exhibit in the Reptile House. Mating occurred in early January, 1975. The hatchling weighed 77.6 g. (3 ounces).

Bowler said the eggs were incubated in large clay flower pots filled with moist beach sand and covered with clear plastic bags to preserve the proper humidity and temperature, which was maintained at 26.7 degrees Centigrade (80 degrees F.).

Sand is critical for successful captive breeding of giant tortoises, Bowler said, because it allows for proper positioning during mating and helps prevent breakage when the female lays her clutch of white, tennis-ball-size eggs, which are normally buried. In addition, Bowler said, regulation of the photo period is also important for the release of hormones. The zoo tortoises were kept under 12 hours of light and 12 hours of darkness each day.

The other five institutions that have captively bred Galapagos tortoises are: Darwin Research Center in the Galapagos Islands; the Opalocka Zoo (now closed) near Miami; the Government Aquarium and Museum of Bermuda; and the San Diego and Honolulu Zoos.

OF VETERINARIANS AND KEEPERS

THE NECROPSY by Mike Stoskopf, D.V.M., Overton Park Zoo & Aquarium
Memphis, Tennessee

There is a joke in medical circles which characterizes different specialists in the field. It starts by noting that a surgeon does everything but doesn't know anything. In contrast an internist or medical man knows everything but doesn't do anything. The pathologist is characterized as knowing everything, and doing everything, but just too late. All too frequently the zoo veterinarian finds that he, like the pathologist is too late. When this happens he resorts to the pathologists' tools, to salvage the most information possible about what happened to the animal. Pathologists often call it the final seat of all knowledge. Human physicians know it as the autopsy. The veterinarian performs the same service, but calls it the necropsy.

The word autopsy means to examine oneself, literally translated the word's only correct usage would be if a corpse performed the procedure on itself. Like many words in medical jargon, though, the autopsy is considered "seeing ones self" as long as its a member of our own species. The necropsy means simply to examine the dead. Naturally it is never a pleasant job for the clinical zoo veterinarian, but it is a most valuable part of preventative medicine in his hands.

A well done necropsy on a fresh body will not only tell the veterinarian what killed the animal, but will also allow evaluation of parasite loads in relation to worming procedures used and dietary pluses or minuses which may not have been evident clinically. It can even give insight into the success of the reproductive programs established for the animals.

This is all very interesting, you say, but what does it mean to a keeper? After all the veterinarian is the "gut puddler" for the zoo. Keepers take care of the live animals. The point then is, what can you do to help the veterinarian to get the most out of a necropsy?

When you find a dead animal, be extra careful to note the position it is in when you find it. Is it on its side? Is its head caught? Is it near a fence or in the middle of an enclosure? Anything you can note about the body could be important to the final diagnosis.

Be prompt in reporting the death. Intuitively, it is obvious that the fresher the body, the more there is to be learned from it. Heat is the big factor. If you are dealing with a small animal get it to a refrigerator immediately. It's not too extreme to pack a large animal in ice if you have to wait for the veterinarian to arrive on a hot day. But like everything else, a little is good but a lot can be too much. Freezing abody can destroy the tissues for future microscopic studies, as well as killing bacteria which might have been culturable. In the case of long delays freezing is better than nothing, but it should be considered a last resort.

Finally don't just deliver the body and run. Give the veterinarian all of the history you can. Even suspicious or "feelings" can help guide the veterinarian in his search for the cause of death. If you are wondering about something, even unrelated to the cause of death, ask about it... it may be the last chance to gather information on the zoo's most valuable asset; the animals.

DETERMINATION OF THE GESTATION PERIOD OF THE GEOFFROY'S CAT by Donald Anderson, Overton Park Zoo & Aquarium, Memphis, Tennessee

The Geoffroy's Cat (*Felis geoffroyi*) is an unstudied little known about feline that inhabits the drier parts of Argentina, southern Bolivia and southern Brazil.

The Geoffroy's Cat is the approximate size of the Margay (*Felis weidii*). Color variations range from silver gray to brown black. The Geoffroy's is marked with patterned thin lines at the head, tapering to wavy lines around the trunk to fine dark spots at its posterior. The tail is ringed with dark thin lines.

The Geoffroy's cat is a hunter in the style of the jaguar. It enters water to catch small fish and it climbs to limbs of trees for rest and to ambush small birds and mammals.

The female Geoffroy's cat will bear one litter of young per year. Litters number between one and three cubs.

Data calculated from nine litters was used to determine the gestation of the Geoffroy's cat at 65 days (Table 1). A more reliable calculation is 64 to 66 days because of ± 12 hour variable. The variable is used because seven out of nine litters were born during the night.

Acknowledgements... The author would like to thank Mr. Wayne Carlisle, General Curator of the Overton Park Zoo and fellow keepers Andy Vernon and Jim Russell for their assistance.

Litter #	Breeding Date	Delivery Date	Gestation	Sex	Number of Cubs	Coloration	Remarks
1	1/12/73	3/31/73	64 days	N/A	three	Brown Black	Parent destroyed litter
2	5/1/73	7/4/73	64 days	2.1	three	2 Silver Gray 1 Brown Black	
3	10/1/73	12/6/73	67 days	2.1	three	2 Silver Gray 1 Brown Black	
4	4/3/74	6/4/74	62 days	N/A	two	Brown Black	Parent destroyed litter
5	6/9/74	8/18/74	70 days	1.1	two	Brown Black	
6	12/8/74	2/12/75	66 days	1.2	three	2 Silver Gray 1 Brown Black	
7	4/24/75	6/26/75	63 days	N/A	one	Silver Gray	Parent destroyed cub
8	5/10/75	7/14/75	65 days	2.0	two	1 Silver Gray 1 Brown Black	
9	7/31/75	10/5/75	65 days	N/A	?	?	Parent destroyed litter

Table 1

PRIMATE HYBRID AMONG THE BIRTHS AND HATCHINGS AT THE ATLANTA ZOO by
 Alan Sharples, Atlanta
 Zoological Park

On August 11, one of the zoo's two female Siamangs (*Symphalangus syndactylus*) gave birth. The infant, a female, was sired by the zoo's lone Gray Gibbon (*Hylobates moloch*). Except for some short hair on the head at birth, the infant was almost completely naked. At the age of three weeks the body was covered with black and grey hair. The face, which was flesh colored at birth, has begun to darken. The vocalizations made by the infant resemble those made by her father, the Gray Gibbon. I have not heard her hoot like her mother, nor have I seen any evidence of the goiter-like throat sac that is characteristic of Siamangs. The birth occurred shortly after 11 o'clock a.m. in full view of the Zoo staff and visitors. According to volumes 1-14 of the "International Zoo Yearbook" there has never before been a generic cross between a Siamang and any of the six species of Gibbons. All known hybrids have been within the genus *Hylobates*. In each case, the White-handed Gibbon (*Hylobates Lar*) has been involved, and in 1966, a White-handed Gray hybrid successfully mated with a pure Gray Gibbon. The offspring, born at the zoo in Perth, Australia, did not survive.

The Atlanta Zoo has within it's collection a male Hamadryas Baboon (*Comopithecus Hamadryas*) that has been living in the zoo since it arrived as an adult in 1958. He is estimated to be at least 22-24 years old. I would be interested in hearing from anyone who knows of any Hamadryas Baboon of this age or older in captivity or of any current longevity record for the species.

BLACK AND WHITE COLOBUS BORN AT STONE ZOO by Jennifer Beck, Boston
 Zoological Society

A one pound Black and White Colobus was born at the Walter D. Stone Memorial Zoo. The primate is snow white at birth and clings tightly to its mother's fur. The sex of the animal is as yet undetermined.

Black and White Colobus monkeys are still hunted in their native habitats of East Africa for their long silky fur. They are considered one of the most handsome of monkeys. Births in captivity are extremely rare and this is the first Black and White Colobus born in New England. It's birth increases the troupe to six.

SNOW LEOPARD BORN AT MILWAUKEE by Ralph Konrath, Milwaukee County Zoo

Three Snow Leopard cubs born May 26th, 1975, are stealing the show at the lion house. The three male cubs are the first offspring of this six year old pair. Following good advice from the Lincoln Park Zoo, Chicago, the service area with the den was sealed off with the mother observed by closed circuit T.V. The inside isle and outside patio were closed to the public, as she has been a very nervous cat. She was a pleasant surprise and took excellent care of the young, keeping them secluded in the den. The cubs were not observed on the T.V. monitor until they were four weeks old. The father is separated by a screen door as we felt he would be a calming influence on the female. The male also plays with the cubs at the door.

DATE TO REMEMBER : August 23-27, 1976 - AAZK National Conference, San Diego, California. More info in future AKFs.

TWO LEAVE LINCOLN PARK

Saul Kitchener, Lincoln Park Zoo's assistant director, and Bob Hinckley the zoo's bird curator, have both been hired as zoo directors in opposite ends of the country.

Kitchener, a staff member at Lincoln Park Zoo since 1967, has been named director of the San Francisco Zoological Gardens in San Francisco, California.

Hinckley, the zoo's bird curator since 1971, has been appointed director of the Roger Williams Park Zoo in Providence, Rhode Island.

RARE BIRD HATCHES AT L.A.

Los Angeles Zoo officials have announced another world first in captive breeding in the zoo's aviary.

Two Pale-mandibled aracaris, hatched recently in the aviary, hold the world's longevity record for captive hatchlings. These birds are of the toucan family and are native to Ecuador.

Since the parent birds immediately rejected the young, hand raising was necessary to assure their survival. These birds were carefully hand fed by animal keepers John Tobin and Dale Thompson, along with Emil Matthys and Pat Weir.

Rick Rundel, curator of birds, cites this successful hatching as part of the extensive breeding program with toucans at the Los Angeles Zoo.

Prior to the establishment of the L.A. Zoo breeding program, toucans had never been bred on a regular basis.

"ZIGGY" DIES

The Brookfield Zoo's 58 year old male Asian elephant, "Ziggy", has died. The animal died Monday night, 27 October. Cause of death is being listed as old age. "Ziggy", one of the better known elephants in zoo circles, had been kept in an inside exhibit since 1941, after he attacked several keepers. He was let into an outside yard in 1970 after the exhibit was modified.

"THANKS" AND A KISS ...

...to all who have helped make AKF a progressive vital publication: In Topeka, Chris and Vicky LaRue, Ron and Jane Kaufman, David Ruth, Linda Rounds, Sandy Horvat and Susan Love. Linda Weiss, Perry LaBelle, Sue Lackey and Rick and Judie Steenberg handled things in St. Paul.

DEADLINE FOR THE DECEMBER AKF IS 20 NOVEMBER 1975
Send all articles for AKF to 635 Gage Blvd, Topeka, Kansas, 66606.
The views of the Authors may not reflect those of the AKF Editorial Staff.

AAZPA EXHIBIT AWARD

Brookfield Zoo has received this year's exhibit award from the American Association of Zoological Parks and Aquariums for the Lion House Addition's Saharan Predator Exhibit. The award was announced during the annual AAZPA banquet held Thursday, Sept. 18, at the Palliser Hotel in Calgary, Alberta, Canada.

In selecting the recipient for this award, primary consideration was given to the application of new materials to enhance authenticity of physical detail in simulating an animal environment, maximize normal animal behavior, and improve provision for the biological needs of the animals to be exhibited. The exhibit won over eight others, including the monkey house at Washington, D.C.'s National Zoological Park, an African plains exhibit at the Philadelphia Zoo, Bird World at Denver Zoo, a bog turtle natural habitat at Staten Island Zoo, a reptile complex at the Knoxville Zoo, a golden lion marmoset and mixed species exhibit at Oklahoma City Zoo and an aquatic exhibit at the Portland Zoo. The first AAZPA exhibit award was presented last year, and was won by the Topeka Zoo for a tropical rain forest exhibit.

The Saharan Predator Exhibit simulates the habitat of such animals as the sand cat, caracal and fennec fox. The exhibits department has made a replica of the Tassili plateau in southeast Algeria, a barren desert area of massive wind-scoured, sculpted rock, sand and grottos.

PHILADELPHIA ZOO SETS RECORD FOR WORLD WILDLIFE FUND'S PANDA BANKS

The Philadelphia Zoo became the first to pass the \$10,000 mark in contributions to benefit the World Wildlife Fund (WWF) through collections from its two panda banks located in the Rare Mammal and Carnivora Houses.

THE HYLID FROGS OF MIDDLE AMERICA

The Hylid Frogs of Middle America is an exhaustive publication of the 14 genera and 115 kinds of tree frogs of the family Hylidae of Mexico and Central America. It is the result of 13 years investigation by William E. Duellman. The books are profusely illustrated with 14 graphs, 78 maps, 9 photographs, 87 audiospectrograms and 788 drawings by David M. Dennis. 152 watercolors are combined into 32 plates. The books are complete in 2 cloth-bound volumes, comprising 693 pages. This is a limited offer - 40% off the publisher's list price. The volumes are available now for \$15.00. Order from - Publications Secretary, Museum of Natural History, University of Kansas, Lawrence, Kansas 66045. Make checks payable to "Museum Shop, Publications". Kansas residents add 3.5% sales tax. Postage and handling are included in prepaid orders.

SAFETY MANUAL

The Calgary Zoo's recently published "Safety Manual for Zoo Keepers" is available for \$5.50. This book on manual restraint can be ordered by mail through: Mr. Sid Dutton, Personnel Liaison Officer, Parks and Recreation Dept., Box 2100, City of Calgary, Alberta, Canada.

ANIMAL KEEPERS' FORUM FINANCIAL STATEMENT - 3rd QTR. 1975 by Judie Steenberg

Cash on hand 30 June 1975

\$ 819.45

INCOME

Subscriptions (2 @ \$5.00, 2 @ \$2.50)	\$ 15.00	
AAZK Memberships (4 @ \$5.00, 76 @ \$2.50)	210.00	
Contributions	11.00	
Loan from Topeka Friends of the Zoo *	400.00	
Total Income	\$ 636.00	\$ 636.00
		<u>\$1,455.45</u>

EXPENSES

Refunds (2 AAZK @ \$2.50, 1 AKF @ \$5.00)	\$ 10.00	
Printing Supplies and machine use:		
Machine use 2 mos. @ \$3.00/mo.	6.00	
Paper & correction fluid	115.75	
Gestefax styli	22.77	
Postage: miscellaneous (correspondence, 1st class		
Canada, Overseas, packages, etc.)	44.21	
Topeka Bulk Permit Fees - Permit No. 631	45.00	
Bulk Deposit August	22.31	
Bulk Deposit September	31.00	
Shipping costs - Sept AKF St. Paul to Topeka	9.15	
Equipment and Office Supplies:		
Smith-Corona electric typewriter	184.71	
Gestefax Jr. Stencil Cutter	601.87	
Metal Supply Cabinet & Stand	31.05	
Typewriter cartridges	5.16	
Misc. Office Supplies	25.56	
Service - St. Paul Bank	.60	
Total Expenses	\$1,155.14	<u>\$1,155.14</u>

Cash on Hand 30 September 1975

300.31

Year to Date Figures: Cash on hand 31 December 1974	\$ 305.29
1975 Income	<u>1,765.00</u>
Total Operating Capital	<u>2,070.29</u>

Refunds	\$ 80.00	
Printing Supplies & Machine Use	402.05	
Postage	432.24	
Office Supplies	37.46	
Equipment	817.63	
Bank Charges	.60	
	<u>\$1,769.98</u>	<u>1,769.98</u>

Cash on hand 30 September 1975

300.31

* During the 3rd quarter, 1975, AKF made major equipment purchases. This was necessary because of moving the printing process from St. Paul to Topeka. The typewriter needs no explanation, it was an absolute necessity. The Gestefax Jr. Stencil Cutter was purchased jointly with the Topeka Friends of the Zoo, (TFOTZ). The sum of \$400.00 was borrowed from TFOTZ at no interest, payable in 6 months. Either party to the agreement has the option to purchase the other party's interest in the machine. If you have any questions regarding the finances of AKF, please contact Judie Steenberg, 635 Gage Blvd., Topeka, KS 66606.

Campaign '76

The past year has been a time of progress for Keeper professionalism. Animal Keepers' Forum was published on a regular basis due to adequate financing and Keeper participation. Your continued support will insure future success.

Now is the time to renew your AAZK membership. Avoid the Christmas Rush, send your '76 dues now, while you're thinking about it. You can help AAZK to grow by encouraging a co-worker to join you in supporting your organization.

AAZK is an organization of dedicated people who represent the total zoological effort.

OUR PURPOSE....TO PROVIDE A MEANS FOR THE DISSEMINATION OF PRACTICAL KNOWLEDGE RELATING TO THE CARE AND HANDLING OF ANIMALS EXHIBITED IN ZOOS AND AQUARIUMS THROUGHOUT THE UNITED STATES AND CANADA.

Our services....to all members of the organization includes a subscription to our national publication, the Animal Keepers' Forum. This newsletter is written and published by AAZK members and contains articles of interest based on specific experiences in animal care, conservation and news from various zoos and aquariums....

....in addition to this publication, AAZK provides an opportunity for members to attend regional meetings and national conferences. Delegates present papers of professional interest based on practical application in their daily care of the animals in their collection. Each year a different area is selected for these gatherings so members have an equal opportunity to attend one or more of them. No zoo is too large or too small for an AAZK conference....

....Keepers at various zoos have formed AAZK chapters. This allows for individual educational programs and meetings directed toward their local needs....

....AAZK affords its members an awards program, selecting a top Keeper of the year, and another certificate honors the most valuable article for publication in our newsletter....

....AAZK membership cards are honored throughout the United States and Canada at many Zoos and Aquariums, allowing members and their families free entrance....

....Progress is only possible through professional effort. JOIN NOW!

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Vol. II No. 11
November
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DEDICATED TO PROFESSIONAL ANIMAL CARE.

ANIMAL KEEPERS' FORUM



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AMERICAN ASSOCIATION OF ZOO KEEPERS

ANIMAL KEEPERS' FORUM

DEDICATED TO PROFESSIONAL ANIMAL CARE.

VOLUME II, NUMBER 12

DECEMBER 1975

COGITATIONS ON WILD ANIMAL HUSBANDRY by C.H. Keeling, Worthing, England

Here is a thought which you might like to dwell upon for a while: are we losing the art of wild animal husbandry? In our profession we are informed at every verse end that with our modern knowledge of dietetics and veterinary science and improved research into an animal's biological requirements, a wild animal coming into confinement has an infinitely better chance of happy survival than it would have had a century ago - in fact, we may sometimes wonder just how the zoological gardens of yesterday managed to keep going, so incompetent and inexperienced did they appear to be. And yet I don't know..... Let us take a look at the Tuatera (*Sphenodon punctatus*) of New Zealand - a perfect case in the possibly controversial point I am going to raise.

During the middle of the last century a number of collections exhibited this strange creature, and very easy it was to keep, too, on a diet of earthworms - in fact it would often live thirty, forty or even fifty years on this homely sustenance. Now I am quite convinced that the times we are living in will go down to posterity as the Age of Theory: you name it, theory will be applied to it, whether it be medicine, teaching sport, politics, military science or wild animal husbandry (at this juncture it may be as well to remember that in theory, by all the laws of aerodynamics, the Honey Bee cannot fly, as its wings are just too small to bear the weight of its body). Consequently, the dieticians who tell how to feed out animals today assure us that the traditional diet for a Tuatera was hopelessly inadequate, it couldn't possibly thrive for long on that sort of food: "give them freshly killed day-old chicks, and snails, and finely chopped raw meat, and eggs and multi-vitamin preparations and trace elements", they say. So we do, and think we have done marvelously if we keep one of the wretched things for five years.....



Animal Keepers' Forum is a non-profit monthly publication distributed to professional zoo keepers independently, and by the American Association of Zoo Keepers as a service to its members. Animal Keepers' Forum includes news and official announcements of the American Association of Zoo Keepers, formerly published in The Keeper.



AMERICAN ASSOCIATION
OF ZOO KEEPERS

635 Gage Boulevard
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MERRY CHRISTMAS

This being the last chance for it, we would like, on behalf of the Board of Directors, to wish each and every one of you a most Happy Holiday Season. May 1976 bring you all the health and success you can manage.

A YEAR END REVIEW

The year 1975 has been a good one for the American Association of Zoo Keepers.

--Most significant is our association with the publication "Animal Keepers' Forum". A highly skilled editorial staff and dedicated printers and publishers have brought it unqualified success.

--Believe it or not, the proceedings from the Chicago Conference are in the works and will printed and issued.

--"The Keeper", a professional journal being published by the AKF Staff, is well on its way to completion. A gigantic task for all concerned, it is now being prepared for printing and you'll see it soon.

--Election '75 brings us two new members to the Board of Directors and retains a long time member for yet another term. Looks like we may wind up with a real working Board come January!

--One item that has been at the forefront of our thoughts in the past is the financial status of AAZK. Our books are in the **BLACK** as 1975 comes to a close. Hallelujah!

"THE KEEPER" IS STILL COMING!!!

Your October issue of AKF stated "The Keeper" had a target mailing date of 15 November. Well, we missed the target but we're still on the range. After some unavoidable delay in negotiating some financial assistance and after a lot of editorial work and associated problems, "The Keeper" will shortly be printed and on its way. Be patient, please.

A RENEWAL REMINDER

Don't forget, it's renewal time for your AAZK membership. We would like to think we don't have to send out special reminders. There is a membership/subscription blank in every issue of AKF. Use it. So far, we are encouraged. But, being keepers ourselves, we know it's easy to let things slip by unattended to--especially money matters--. Renew now, before you've spent all your wages on Christmas!

MILWAUKEE CHAPTER AAZK

by Bob Hoffman, Milwaukee County Zoo

The guest speaker for our October meeting was Max Nickerson, Curator of Vertebrate Zoology, Milwaukee Public Museum. Mr. Nickerson gave an excellent slide lecture on a recent South American expedition.

At the chapter's November meeting, we had another excellent program given by a Game Warden from the Wisconsin Department of Natural Resources.

On behalf of the Milwaukee Chapter AAZK, I would like to wish the entire membership a Merry Christmas and a Happy New Year.

MYSTERY SURROUNDING ZOO'S GALAPAGOS ISLAND TORTOISE NEARS SOLUTION

A key to Galapagos Tortoises developed by a San Diego Natural History Museum scientist reveals six species in the San Diego Zoo's tortoise population and appears to have solved a mystery that has baffled the zoo for years. Why don't the tortoises reproduce?

Although the San Diego Zoo is one of four institutions outside of the Galapagos Islands to breed the endangered tortoise, reproduction has been erratic and alarmingly low. Of the 19 to 122 eggs laid every year since 1961 only a small proportion have hatched -- an insufficient number to renew the herd.

The problem seems near solution now, however, with the work of Dr. Thomas H. Fritts, Curator of Reptiles and Amphibians at the San Diego Natural History Museum. After detailed computer studies of the Zoo herd and hundreds of specimens elsewhere, Dr. Fritts feels that the tortoises may have failed to reproduce in the past because of a mixing of different kinds of tortoises within the Zoo herd. Working with his research assistant, Susan Palko, he has been able to distinguish six distinct types within the Zoo group. If he is correct, when these types are separated into pure herds, reproduction will be greatly increased.

This is a matter of some urgency as, of 13 kinds of giant tortoise originally populating their native Galapagos, two may now be extinct and nearly all are endangered due to a variety of factors including the introduction to the islands of animals like the rat and wild pig which now prey upon the Galapagos herds. Among herds existing in institutions outside the islands, only those at the San Diego, Honolulu and Bermuda Zoos have had repeated reproduction. This has been irregular and unsuccessful.

"We want to identify the various kinds and mate those individuals from the same island or area. For this we need to census all Galapagos Tortoises in captivity and encourage exchange of specific types for reproduction in those areas most likely to be successful," Dr. Fritts says. What is required now is a re-identification of all Galapagos Tortoises in other zoos in the United States -- a Who's Who among the species. Identifying the types will require the measurements from hundreds more of the tortoises and a computer analysis of their shape size, age, sex and etc. This work is part of a comprehensive study looking at many factors including courtship, the composition of soils in which eggs are laid and climatic fluctuations in San Diego that may also limit reproduction.

Dr. Fritts and his assistant have been involved in this work since January 1975, working in cooperation with the San Diego Zoo's Curator of reptiles, Dr. James Bacon.

Funds and personnel for the research are being provided by the San Diego Natural History Museum and the San Diego Zoo. Additional funding is being sought for a complete study of the tortoises.

HAPPY HOLIDAYS AND BEST WISHES

FOR A PROGRESSIVE NEW YEAR FROM THE AKF STAFF

AQUATIC GENETICS EXHIBIT AT NEW YORK AQUARIUM

Can a blue-colored parent and a gray-colored parent produce red offspring? Of course not...according to basic color theory. But the opposite is vividly demonstrated in a new Aquatic Genetics Exhibit in the main Fish Hall of the New York Aquarium. Variations in body size and form among fish are also displayed and explained.

Pygmy swordtails--a bright metallic blue--and common platyfish--ordinary gray--mate and produce red young that resemble the platys in form. This is created by "hidden" color genes in the pygmy swordtails. When bred together, the red offspring in turn produce several color variations--assorted combinations of red, gray, and blue--in their young. Such hybridization has been behind the creation of platyfish and swordtails bred for fish hobbyists.

Another fascinating and even more important genetic variation is demonstrated in the largest of the three exhibit tanks, which holds both large and small pygmy swordtails. Both sizes are adult males, and were derived from the same parents. How? By a simple hereditary switch mechanism acting through the pituitary gland.

Over extremely long periods of time in the wild, natural selection for such traits results in the origin of new species.

MARINE MAMMAL OVERSIGHT HEARINGS CONTINUE

On October 30, the House Merchant Marine and Fisheries Subcommittee on Fisheries and Wildlife Conservation and the Environment, chaired by Rep. Robert L. Leggett (Calif.), completed the first round of Washington, D.C., oversight hearings on the Marine Mammal Protection Act (MMPA) of 1972. The Subcommittee plans, tentatively, on holding a field hearing in San Diego, California, on December 6.

After receiving testimony from three government witnesses on October 21, a total of 20 representatives of industry, conservation organizations, State of Alaska, and commercial aquariums appeared before the Subcommittee on October 29-30.

A group of aquarium operators representing the Zoological Action Committee testified before the Subcommittee. Included in the group were George E. Steele, Jr.; Robert Wagner, American Association of Zoological Parks and Aquariums; Dr. Lanny Cornell, Sea World, Inc; Don Jacobs, Marine Life Inc.; and John Prescott, New England Aquarium.

All of the aquarium spokesmen expressed dissatisfaction with the current permit procedures, claiming too much red tape and inordinate delays are involved in securing permits to display marine mammals. Also, they rejected claims that the animals are not treated humanely as a general rule.

Dr. Cornell said the "restrictions of such dubious merit have been imposed upon permittees under the (MMPA) as to have likely caused the deaths of more marine mammals than they have saved." Wagner informed the Subcommittee that U.S. zoos and aquariums are visited annually by more than 113 million persons. Jacobs declared that "our major concern in coming here is to seek an amendment of the Act to allow for open-ended permits for qualified institutions." Prescott criticized the Act for the "biologically unsound" manner in which it lumps all marine mammals together.

OF VETERINARIANS AND KEEPERS by Mike Stoskopf, D.V.M. Overton Park Zoo, Memphis, Tenn.

It is midmorning and you are just putting the finishing touches on your run when along comes the veterinarian. He is carrying his black bag and announces that it is time to vaccinate your animals. The mechanics of the procedure are familiar. Vaccine is reconstituted and injected into your animals, either by hand or dart. The veterinarian smiles, packs his bag and walks on. But what is going on in your animal? How does a vaccine protect an animal from disease?

The response of an animal's body to invasion by a foreign, disease causing organism is an orderly process of relatively discrete steps. First, the body has to recognize that it has been invaded. On the cellular level, this means that the proteins making up the outer layer of the invading organism are different enough from any of the proteins normally found in the body to allow cells in the blood to initiate the "immune response". These foreign proteins are called antigens. The blood cells that detect the antigens or foreign proteins, alter their biochemical makeup to become a template for the production of proteins known as antibodies. These are designed to attach to foreign proteins and thereby render invading organisms useless. This process is fairly quick, and since it occurs on the spot in the blood vessels it has been called either the humeral response or the immediate response. On its own, however, this response can be inadequate to protect the body. Essentially it results in invading organisms being globbed up by lots of antibodies, and it does destroy some of the antigens.

Second, the body must defend itself. This is called the "cellular response". The cellular response is the production of special new cells in the body by the lymph nodes. These cells are "sensitized" to the foreign proteins of the invading organisms, and when they are released into the body, they attack and digest the invaders. To reach full production of these cells in a lymph node takes two weeks, though. This "cellular" or "delayed response", then is not always going to be available in time to save an animal against some of the faster acting diseases.

But what happens if the body can save time by having its defensive cells already modified and ready? To do this the body needs to have experienced the organism and its antigens in the past. This is precisely what vaccination accomplishes. When an animal is vaccinated you are injecting antigens which are just like those of a disease producing organism. Vaccine manufacturers and scientists have carefully modified these vaccines so that they do not produce the disease, but do prime the immune response system of an animal. This allows the body to attack invading disease organisms faster with both responses, usually preventing the disease from even getting a foothold in the body. The success of a vaccination is then dependent not only on the vaccine, but also on the ability of the individual animal to respond to the vaccine. What could affect this response? Why are there different vaccines for the same disease? Why do we need to give boosters? These are all questions we will deal with next month.

(Send questions for Dr. Stoskopf to: AKF Editors, 635 Gage Blvd.,
Topeka, Kansas 66606)

DRAGON'S BROKEN LEG MENDED San Diego Zoo

One of the rarest reptiles at the San Diego Zoo has undergone surgery which is believed to be the first of its kind ever attempted.

The surgery has resulted in the apparently successful repair of the broken leg of a Komodo dragon, a huge lizard found only on remote Pacific islands. The animal fractured its right foreleg, perhaps by falling from rockwork in its exhibit.

When the fracture was discovered, the Komodo dragon was placed in a body splint to see if the fractured humerus bone would mend without surgery. Healing of simple fractures can occur spontaneously if the animal's use of the broken limb can be restricted.

While the body splint was in place, the lizard was X-rayed twice weekly to see if the bone was mending. After three weeks and little improvement, Zoo veterinarians decided to repair the fracture using internal bone-plating.

Drs. Phillip Robinson, Charles Sedgwick and Jane Meier performed the four-hour surgery on Oct. 19. After the Komodo dragon was anesthetized, a plate of surgical stainless steel, seven centimeters (three inches) long, was affixed to the bone with six screws.

Bone-plating is a relatively new tool in veterinary medicine. The same techniques and equipment used in bone-plating procedures on humans are used for animals.

Robinson said that because of the rarity of Komodo dragons in zoos, the bone-plating operation was undoubtedly the first use of the technique on the giant lizards. He added that the reptile's respiratory system presented special problems in administering and maintaining the anesthesia.

Reptiles have the ability to shut down their circulatory and respiratory apparatus while in an inactive state, so that they may breathe as infrequently as once an hour. Under such circumstances, inhalation-induced anesthesia is dependent entirely upon the respirator used during surgery, instead of on the patient's own reflexive breathing mechanism.

The respirator and the anesthetic, halothane, which were used on the Komodo dragon are also used in human surgery. The bone-plating surgery was the first use of an inhalation anesthetic on a Komodo dragon at the San Diego Zoo.

After the surgery, the Komodo dragon was again placed in a body splint for a few days of recovery. When the body splint was removed, the 42 pound lizard wiggled away on a completely functional leg, Robinson said.

The San Diego Zoo's Komodo dragons are the only ones in any zoo in this country. They are found only on the small islands of Komodo, Padar, Rintja and Flores, east of Java. Males may reach 200 pounds and nine feet in length.

Komodo dragons, the largest living lizard, are an endangered species and are protected by the Indonesian government. The Zoo's two, which were thought to be a male and a female upon arrival in 1968, were presented by the Surabaya Zoo on the island of Java.

NEW EXHIBIT AT L.A. ZOO

Specimens of the world's largest species of wild cattle are now on exhibit at the Los Angeles Zoo.

Two young Gaur, born in the Oklahoma City Zoo, currently are getting used to their new home in the zoo. Formerly a camel exhibit, the Gaur's home has been modified to suit their needs. The camels were moved to another exhibit.

Associating in small herds in the wild, Gaur inhabit the grassy forest areas of India, Southeast Asia and the Malay Peninsula. They are not domesticated.

Outbreaks of disease among domestic cattle in Asia have caused the Gaur to reach the endangered species list.

SAFE GRANT ENLARGES RARE PRIMATE EXHIBIT by Dick Cooper, Philadelphia Zoo

The Philadelphia Zoo opened a newly renovated exhibit for a pair of mon-goose lemurs in the Rare Mammal House on October 29. Funds for the improvement project were provided by Save Animals from Extinction, International (SAFE), which presented the Zoo with a \$1,000 grant on October 3, 1975.

The front of the exhibit area was enclosed with welded wire mesh from floor to ceiling. Three large tree trunks were added to provide plenty of climbing room and real and artificial plants were installed.

A stream, which runs down rock work into a small, shallow pool, was part of the original exhibit for red pandas that had only a glass and rail barrier measuring 90 cm (3 feet) high. The three glass walls designed to admit sunlight were also retained in the new exhibit.

The original basement level sleeping quarters were enlarged by 2,25 sq. m (25 sq. feet). Work on the new exhibit was done by the Zoo's Maintenance Department.

Mongoose lemurs are native to Madagascar. They are classified as "vulnerable" or threatened with extinction by the International Union for Conservation of Nature and Natural Resources.

The pair in the renovated exhibit produced twins in 1974 and again this year (two males on May 24). The Zoo first exhibited this species of primates in 1883 and the first birth occurred in 1891. Since then, there have been 14 successful births at the Philadelphia Zoo.

CHEETAH REPRODUCTION by Royce W. Embanks, Jr.
Ranger, Wildlife Safari, Winston, Oregon

Wildlife Safari's cheetah breeding program is again successful. On October 15, 1975, Trian, a wild-caught female, gave birth to six cubs (2.4). One cub died, apparently stepped on by its mother. This litter marks the third consecutive birth of cheetahs at Wildlife Safari. The total number of cubs produced by Trian in three years is now 16, of which 14 have survived to date. The cubs are progressing normally, being raised by their mother (as all litters have been) in semi-isolation. Anyone interested in more details or interested in swapping cheetah breeding information, write: Lauri Marker, c/o Wildlife Safari, P.O. Box 600, Winston, Oregon 97496.

Animalia Nutriology

Dr. Richard S. Patton, Director of Professional Education, Mark Morris Associates, Topeka, KS

- Q. We have several elk and some llamas in large wooded paddocks. They are fed a grain mixture of sweet feed, oats and corn, free choice. There is no grass or browse. I feel they need additional roughage. We have plenty of hay and it's cheap. What is your opinion?
- A. First of all, do you have any elk or llamas still alive? Excuse me for being wise. The situation you describe is actually rather serious. By all means get some hay to these animals. They are by definition "hay burners" of the first order. They have evolved to degrade fiber into energy.

Actually, their first stomach, the rumen, is full of bacteria. It is the bacteria that digest the fiber (or cellulose, which is a form of sugar). These products of fiber digestion are then used by the ruminant to derive energy. When high amounts of grain (i.e. normal starches and carbohydrates) are fed to ruminants, a great deal of very exotic metabolic machinery is used in an unnatural way. This ain't good.

- Q. I've heard people complain about the condition of our snakes. We have a 5-year old boa (7 feet long) that we use in the petting area. We feed him four chicks every two weeks. Is this enough? He would certainly eat more if we let him.
- A. This snake is still growing. Two chicks per week is really not enough. My friends who are more familiar with these creatures say that two rats per week would not be over-feeding at all. An equivalent amount of chicks would probably be on the order of eight to ten per week. Some snakes will eat themselves into a three yard grease slick, but I'm sure the snake you have on hand can serve as a reference point in this regard. Use his present condition (weight to length ratio) as a minimum and strive to maintain him slightly above this.
- Q. I would like to gather a reference library together. Are there any books currently available that you would consider "definitive" sources of sound practical feeding procedures?
- A. No. The reason is that the zoo nutrition field simply isn't of sufficient size to support one. What one needs is a) a sound understanding of basic nutrition, and b) a modest collection of source material. For a), assuming no opportunity to take courses, I would recommend Applied Animal Nutrition, by Crampton and Harris. This book is quite exhaustive on agricultural animal feeding and should serve as a reference. A second book, and in many ways more useful, is Dr. Helen Guthrie's Introductory Nutrition. She makes the necessary biochemistry quite painless. For b), I would recommend the complete set of NRC series, Nutrient Requirements of Domestic Animals, as well as Agricultural Handbook #8, Composition of Foods. Crampton and Harris list the analysis of all common forages in an appendix. Handbook #8 would list the analysis of all the other items fed in a zoo.

RETIREMENT COMES HARD by Stephen L. Conger, Mesker Park Zoo,
Evansville, Ind.

Earl Schulz, keeper at the Mesker Park Zoo, will retire at the end of December, 1975. Mr. Schulz started his Zoo career as an outside keeper in 1958. He later shifted his interest to the small animal section of the zoo. Presently he is working as the bird keeper, as he has been for the last fifteen years.

The zoo has much of the same existing exhibits now as it did then. But instead of some 25 keepers, it only had seven keepers in 1958 working for \$52.50 a week.

Earl tells of his past experiences daily-how the animals were caught without the aid of tranquilizers, but instead by manhandling them. When I asked him how he felt during these experiences, he replied, "Scared, but you can't let the animal know."

He has enjoyed being a zoo keeper; he was active in the American Association of Zoo Keepers, years ago, and has written several articles for the National AAZK Newsletter.

Blunt Wagner, John Clark, Bill Justic, Frank Thompson, John Zara, and Dion Albach are the many directors Earl has served under during his keeper years.

We will all miss Earl Schulz as a keeper and as a good friend. We wish him the best of luck.

DEADLINE FOR THE JANUARY AKF IS 20 DECEMBER 1975

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The views of the Authors may not reflect those of the AKF Editorial Staff.

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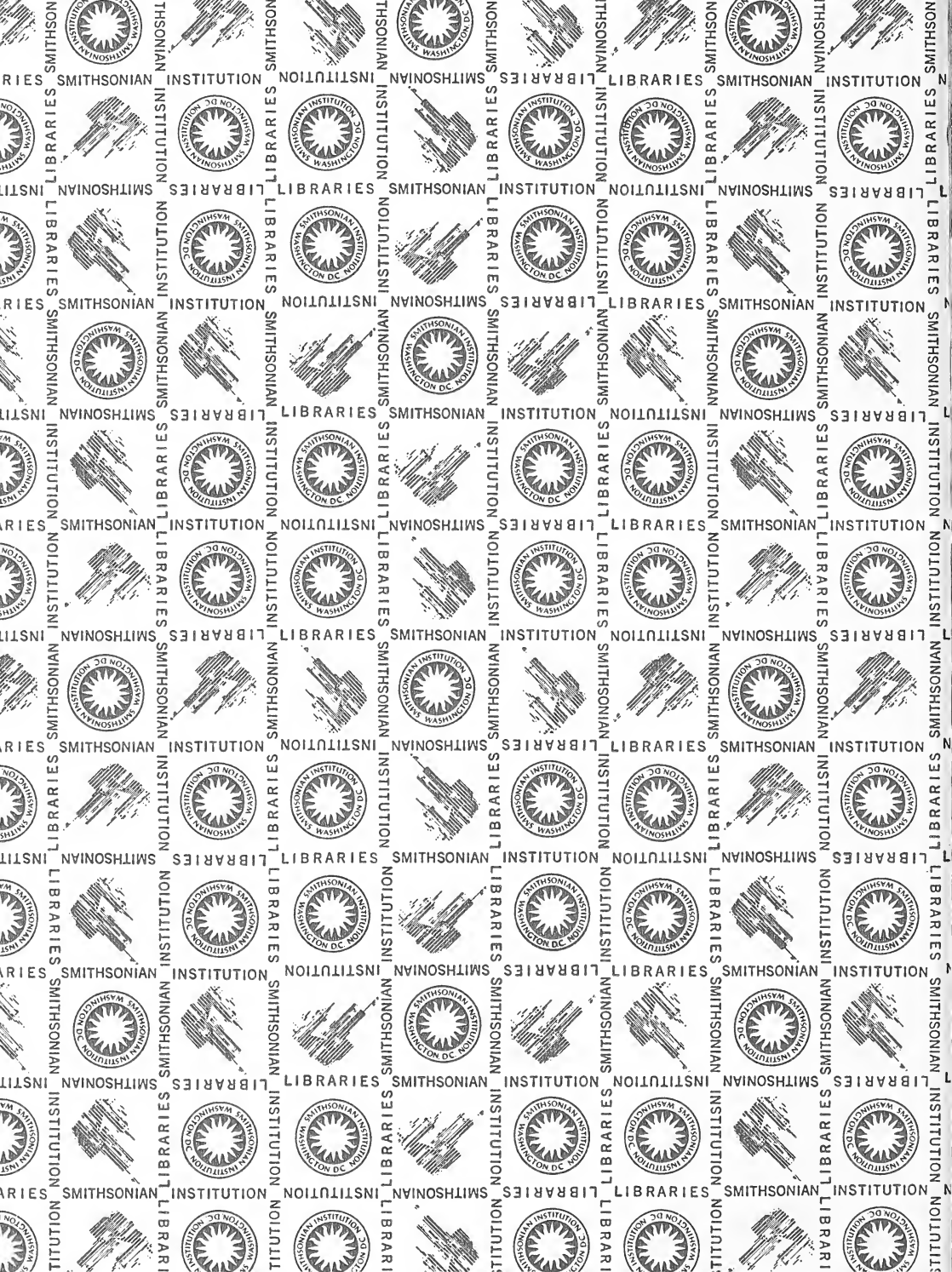
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